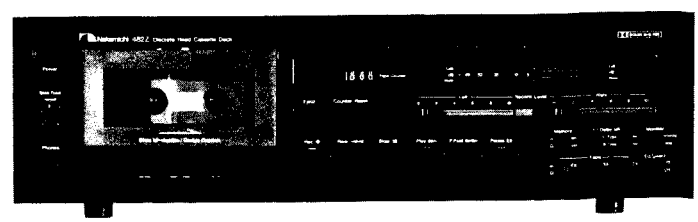
Nakamichi

Service Manual

Nakamichi 482Z

Discrete Head Cassette Deck



482Z

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1. GENERAL

1.1. Control Functions

The Nakamichi 482Z control functions are shown below:

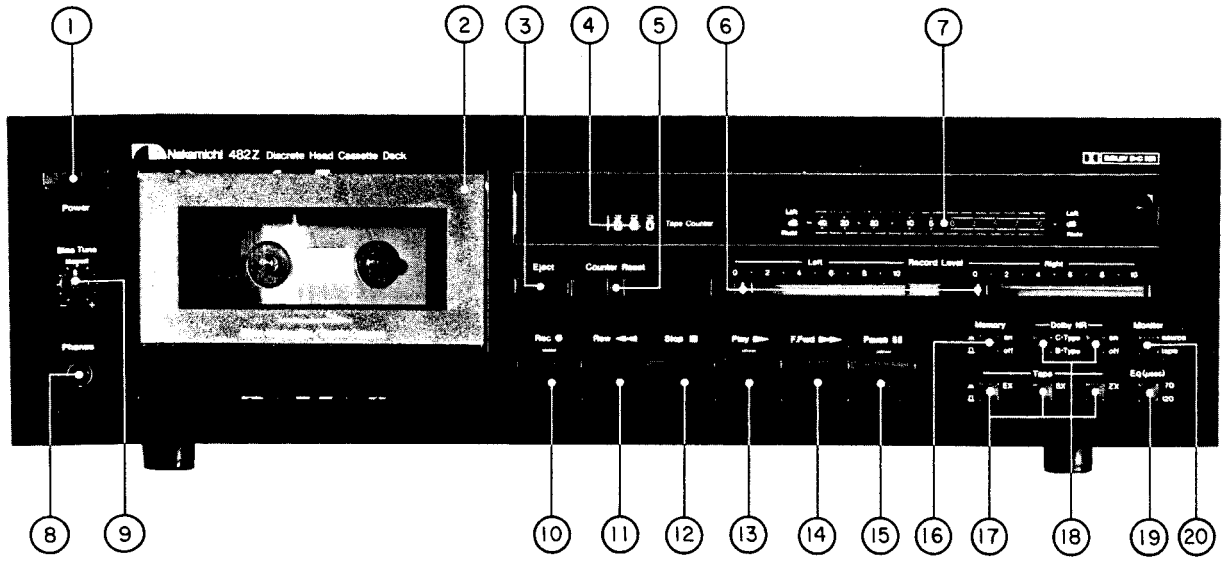


Fig. 1.1 Front View

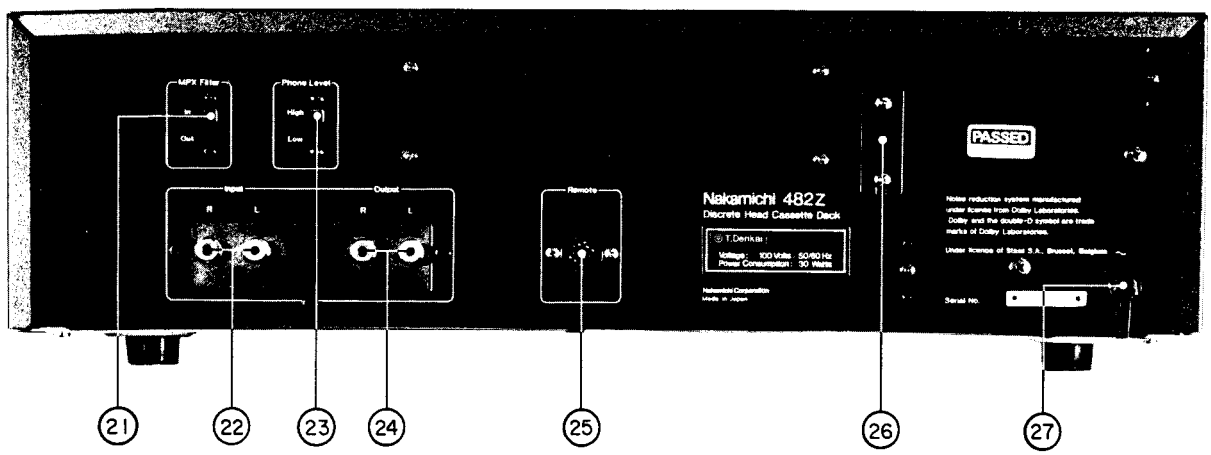


Fig. 1.2 Rear View

1. Power Switch
2. Cassette Lid
3. Eject Button
4. Tape Counter
5. Counter Reset Button
6. Input Level Controls
7. Peak Level Meters
8. Headphone Jack
9. Bias Tune Control
10. Record Button
11. Rewind Button
12. Stop Button
13. Play Button
14. Fast-Forward Button
15. Pause Button
16. Tape Memory Switch
17. Tape Selector Switch
18. Dolby NR Switch
19. Eq. Switch
20. Monitor Switch
21. MPX Filter Switch
22. Input Jacks
23. Headphone Level Switch
24. Output Jacks
25. Remote Control Socket
26. Voltage Selector Switch
27 Power Cord

1.2. Voltage Selector

Voltage Selector is installed on the rear panel for Other Version of the Nakamichi 482Z.
This voltage selector can select either 120 V or 220-240 V at customer's disposal.

2. REMOVAL PROCEDURES

2.1. Cassette Case Cover Ass'y

Refer to Fig. 2.1.

(1) Press the Eject Button to open the Cassette Case Ass'y.

(2) Pull out F01 (Cassette Case Cover Ass'y) upwardly.

2.2. Top Cover Ass'y

Refer to Fig. 2.1.

(1) Remove F02 and F03, then disassemble F04 (Top Cover Ass'y).

2.3. Bottom Cover Ass'y

Refer to Fig. 2.1.

(1) Remove F05, then disassemble F06 (Bottom Cover Ass'y).

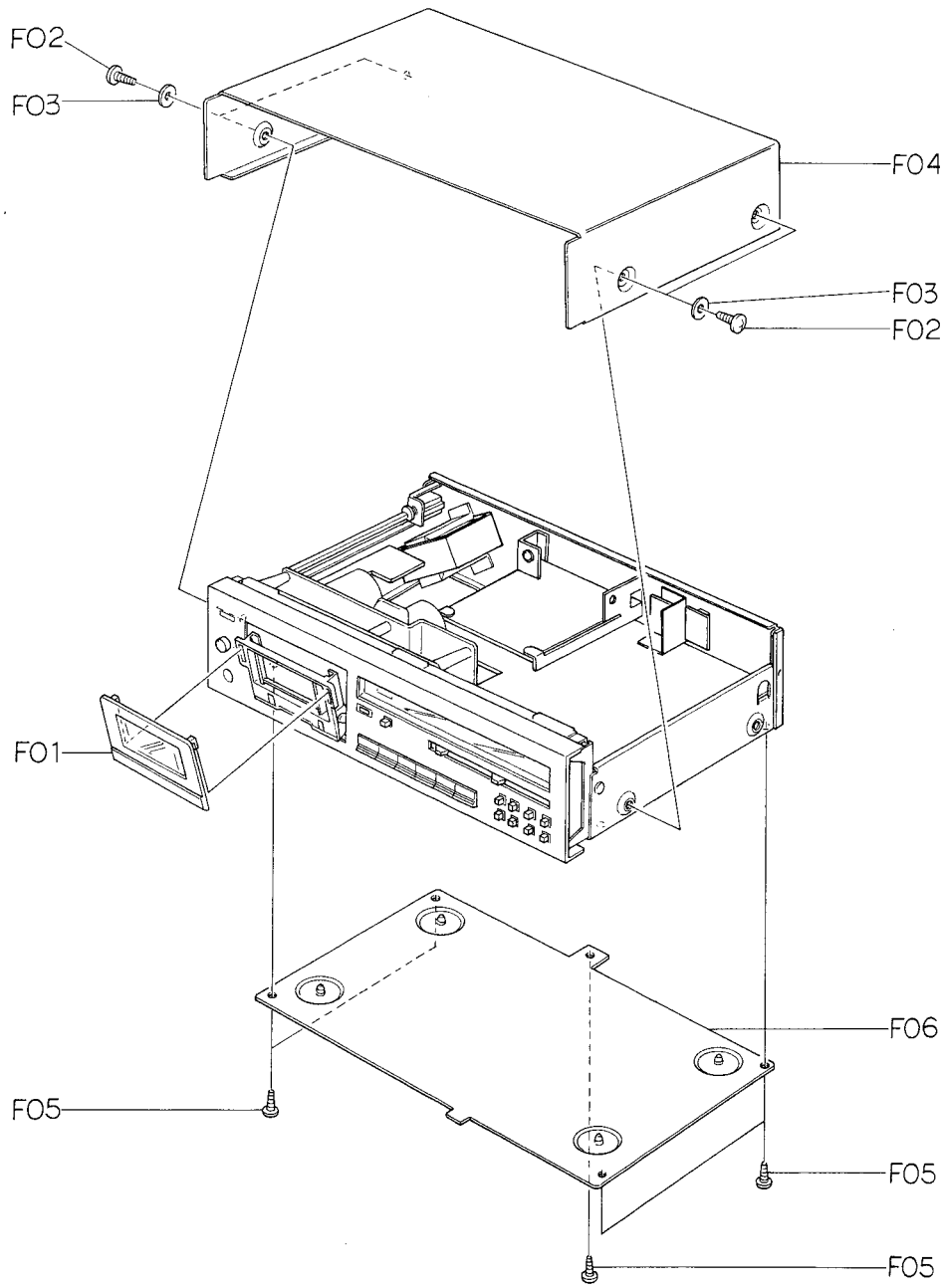


Fig. 2.1

2.4. Front Panel Ass'y

Refer to Fig. 2.2.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y and Bottom Cover Ass'y referring to items 2.2 and 2.3.
(2) Pull out F01 (Volume Knobs) and F02 (Bias Tune Volume Knob).
(3) Remove F03 (Power Switch Joint Bar) by releasing the self-interlocking pin of the Power Switch Joint Bar from Power Switch, and turn F03 (Power Switch Joint Bar) by 90° either clockwise or counterclockwise, then disassemble F03 (Power Switch Joint Bar) from the Power Switch Knob Ass'y.
(4) Remove F04, then disassemble F05 (Front Panel Ass'y).

2.5. Headphone Jack Ass'y

Refer to Fig. 2.2.

(1) Remove Front Panel Ass'y referring to item 2.4.
(2) Remove F06, then disassemble F07 (Headphone Jack Ass'y).
(3) Remove F08 and F09, then disassemble F10 (Bias Tune Volume P.C.B. Ass'y).
(4) Remove F11 and F12, then disassemble F13 (Headphone Jack).

2.6. Mechanism Ass'y

Refer to Fig. 2.2.

(1) Remove Front Panel Ass'y referring to item 2.4.
(2) Remove F14 and F15, then disassemble F16 (Mechanism Ass'y including 5 connectors).

2.7. Level Indicator Ass'y, Lamp P.C.B. Ass'y and Indicator P.C.B. Ass'y

Refer to Fig. 2.2.

(1) Remove Front Panel Ass'y referring to item 2.4.
(2) Remove F17 (Level Indicator Ass'y) by releasing self-interlocking pins of Level Indicator Ass'y.
(3) Remove F18, then disassemble F19 (Lamp P.C.B. Ass'y).
(4) Remove F20, then disassemble F21 (Shield Case).
(5) Remove F22, then disassemble F23 (Indicator P.C.B. Ass'y).

2.8. Logic P.C.B. Ass'y, Headphone Switch P.C.B. Ass'y and MPX Filter Switch P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y referring to item 2.2.
(2) Remove F01, then disassemble F02 (Logic P.C.B. Ass'y).
(3) Remove F03, then disassemble F04 (Headphone Switch P.C.B. Ass'y and Shield Case).
(4) Remove F05, then disassemble F06 (MPX Filter Switch P.C.B. Ass'y).

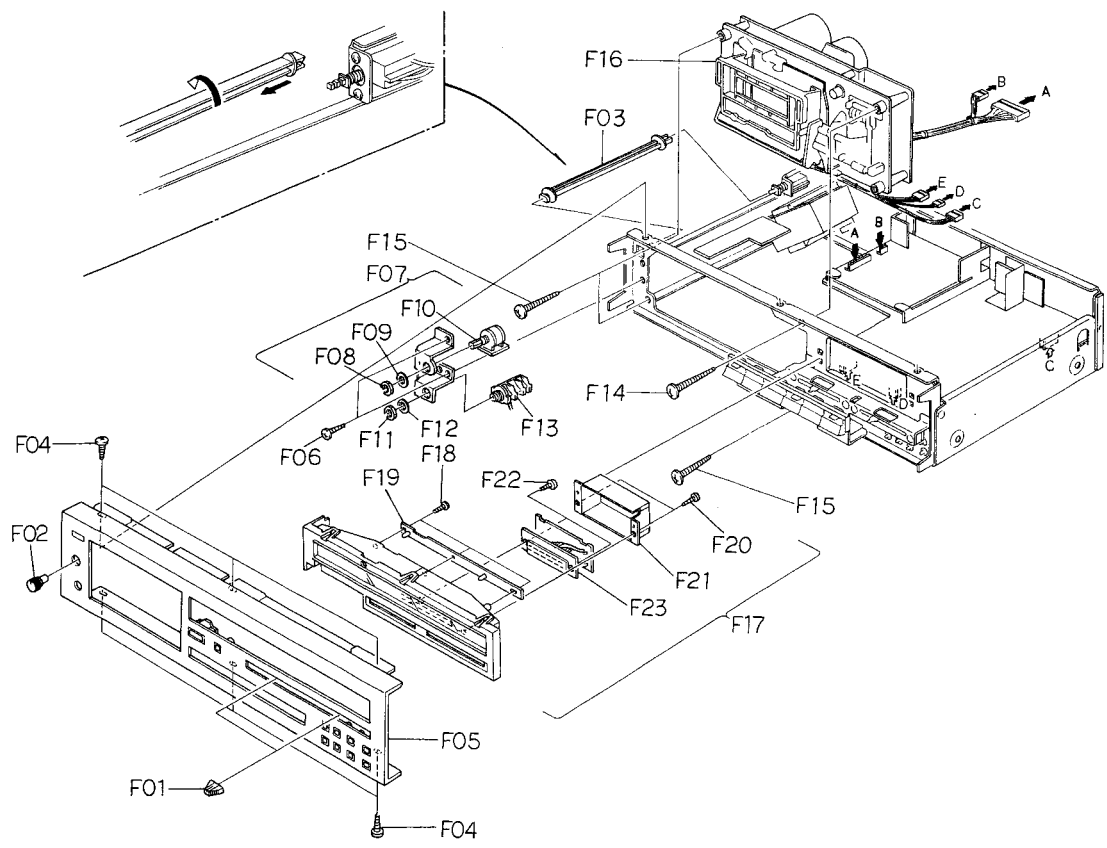


Fig. 2.2

2.9. Main P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y, Logic P.C.B. Ass'y and Headphone Switch P.C.B. Ass'y referring to items 2.4 and 2.8.
(2) Remove 3 connectors and the wires connected by wrapping from the F12 (Main P.C.B. Ass'y).
(3) Remove F07, F08, F09, F10, F11 and F12, then disassemble F13 (Main P.C.B. Ass'y).

2.10. Control Switch Holder Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Level Indicator Ass'y referring to item 2.7.
(2) Remove F14, then disassemble F15 (Control Switch Holder Ass'y).

2.11. Switch P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.4.
(2) Remove F16, then disassemble F17 (Switch P.C.B. Ass'y).

2.12. Volume P.C.B. Ass'y and Control Switch P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Remove Control Switch Holder Ass'y referring to item 2.10.
(2) Remove F18, then disassemble F19 (Volume P.C.B. Ass'y).
(3) Remove F20, then disassemble F21 (Control Button Spring).
(4) Remove F22 (Control Button Shaft), then disassemble F23 (Control Buttons).
(5) Remove F24, then disassemble F25 (Control Switch P.C.B. Ass'y).

2.13. Bias Oscillator P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y referring to item 2.2.
(2) Remove F26, then disassemble F27 (Bias Oscillator P.C.B. Ass'y).

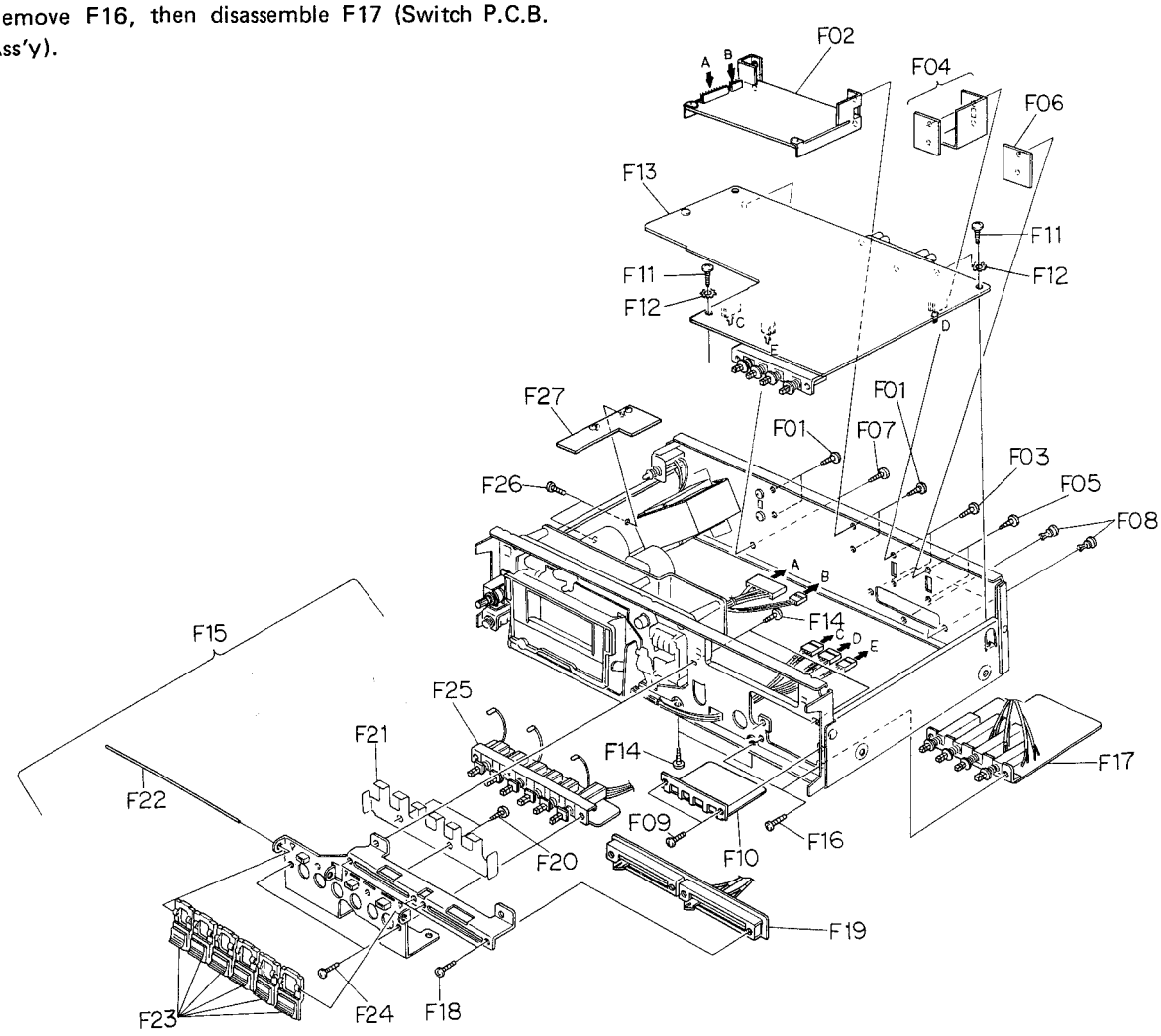


Fig. 2.3

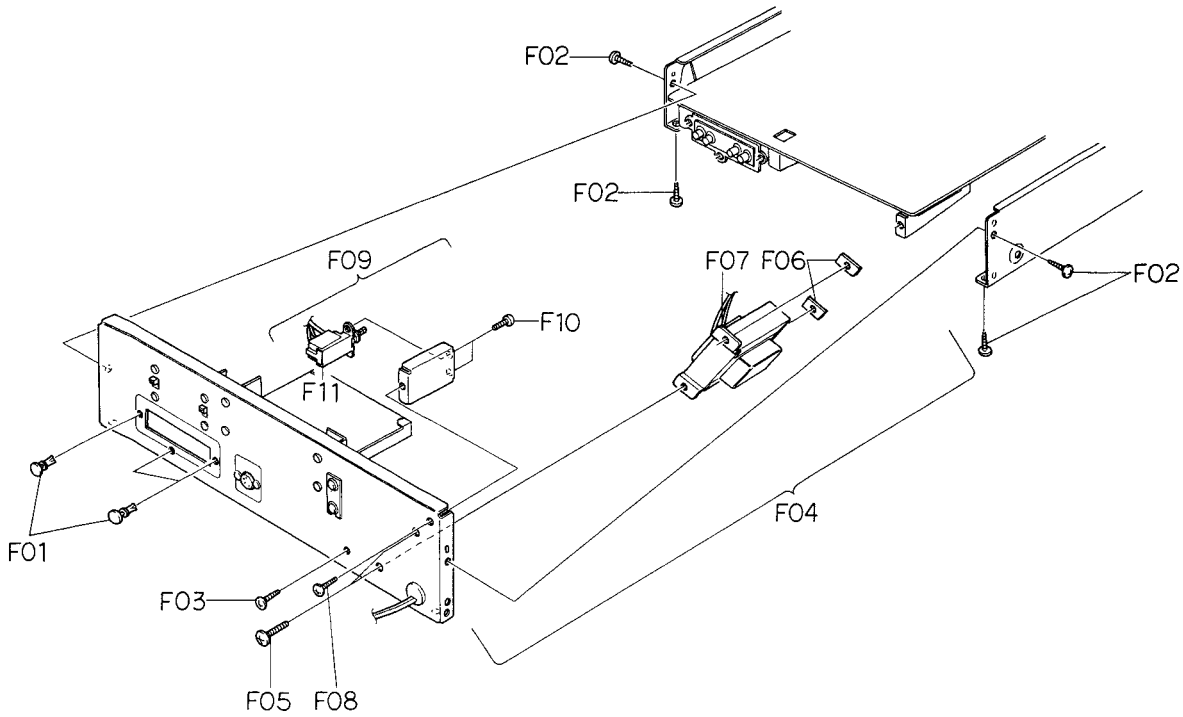

F02
F02
F09
F07 F06
F02
F10
F11
F01
F04
F03
F05 F08

Fig. 2.4

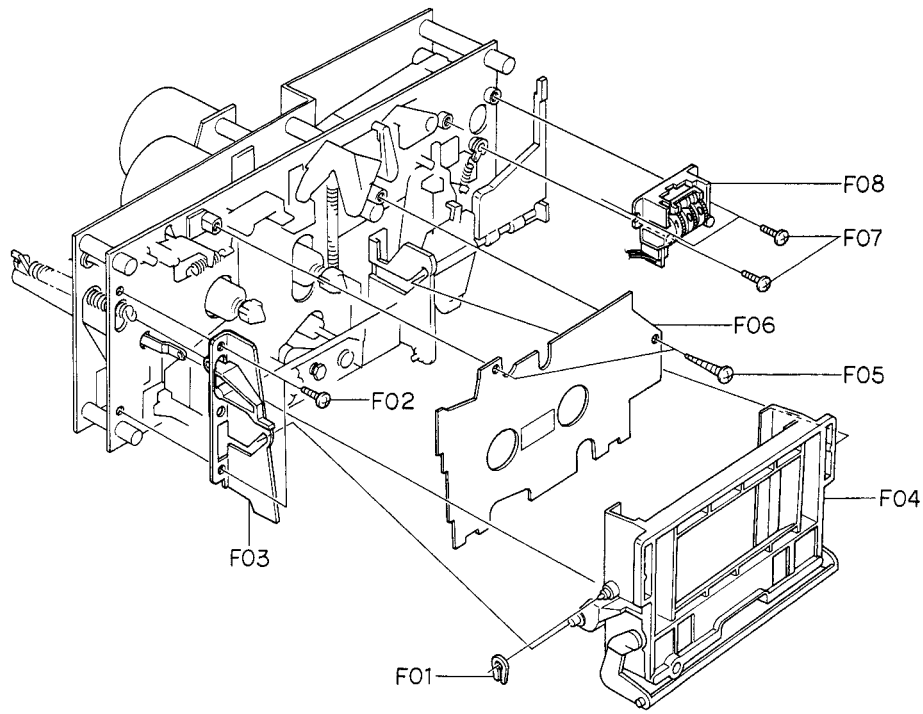

F08
F07
F06
F05
F02
F04
F03
F01

Fig. 2.5

2.14. Rear Panel Ass'y, Power Transformer and Power Switch

Refer to Fig. 2.4.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y and Bottom Cover Ass'y referring to items 2.2 and 2.3.
(2) Remove F01, F02 and F03, then disassemble F04 (Rear Panel Ass'y).
(3) Remove F05 and F06, then disassemble F07 (Power Transformer).
(4) Remove Power Switch Joint Bar by releasing the self-interlocking pin of the Power Switch Joint Bar from Power Switch and F08, then disassemble F09 (Power Switch Holder Ass'y).
(5) Remove F10, then disassemble F11 (Power Switch).

2.15. Cassette Case Ass'y and Cover Plate Ass'y

Refer to Fig. 2.5.

(1) Refer to Fig. 2.2. Remove Mechanism Ass'y referring to item 2.6.
(2) Press the Eject Button to open the Cassette Case Ass'y.
(3) Remove F01, then disassemble the piston of the Pneumatic Damper Ass'y.
(4) Remove F02 and F03 (Cassette Case Holder L Ass'y), then disassemble F04 (Cassette Case Ass'y).
(5) Remove F05, then disassemble F06 (Cover Plate Ass'y).

2.16. Tape Counter Ass'y

Refer to Fig. 2.5.

(1) Refer to Fig. 2.2. Remove Level Indicator Ass'y referring to item 2.7.
(2) Remove F07, then disassemble F08 (Tape Counter Ass'y).

2.17. Capstan Motor Ass'y and Flywheel Ass'y

Refer to Fig. 2.6.

(1) Refer to Fig. 2.2. Remove Mechanism Ass'y referring to item 2.6.
(2) Remove F01 and F02, then disassemble F03 (Flywheel Holder Ass'y) and F08 (Capstan Belt).
(3) Remove F04, then disassemble F05 (Capstan Motor Ass'y).
(4) Remove F06, then disassemble F07 (Control P.C.B. Ass'y).
(5) Remove F09 (Supply Flywheel Ass'y), then disassemble F10 (Take-up Flywheel Ass'y).
(6) After removing both Flywheel Assemblies, disassemble F11 (Thrust Washer 3 mm), F12 (Thrust Washer 2.6 mm), F13 (Flange Thrust Caps) and F14 (Flange Thrust Springs).

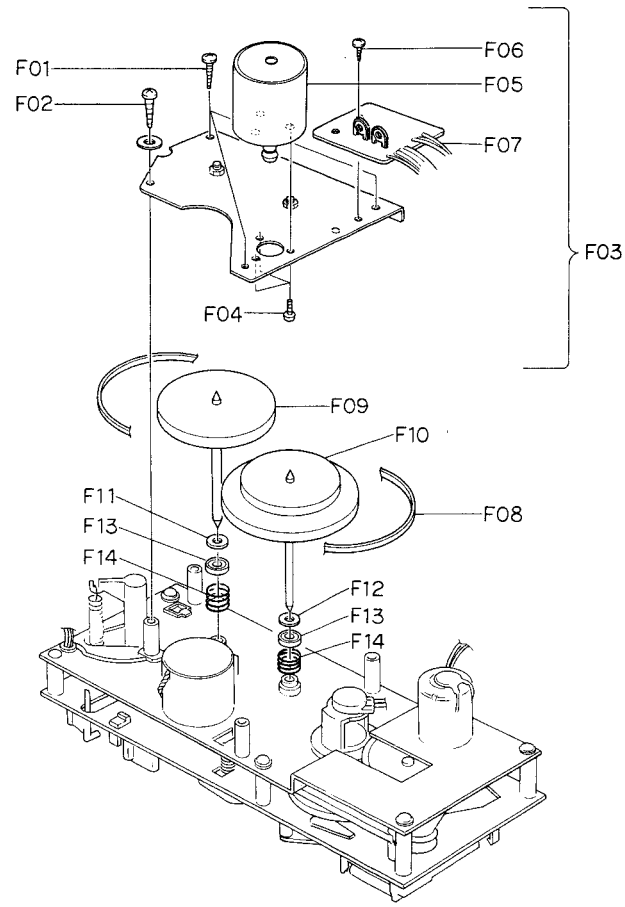


Fig. 2.6

2.18. Sub Mechanism Chassis Ass'y

Refer to Fig. 2.7.

(1) Refer to Fig. 2.6. Remove Flywheel Assemblies referring to item 2.17.

(2) Remove F01 and F02, then disassemble F03 (Sub Mechanism Chassis Ass'y).

2.19. Control Motor Ass'y and Reel Motor Ass'y

Refer to Fig. 2.7.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.18.

(2) Remove F04, then disassemble F05 (Control Motor Ass'y).

(3) Remove F06, then disassemble F07 (Reel Motor Ass'y).

2.20. Cam Control Volume

Refer to Fig. 2.7.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.18.

(2) Remove F08, then disassemble F09 (Volume Coupler).

(3) Remove F10, then disassemble F11 (Cam Control Volume).

2.21. Reel Hub Ass'y and Idler Ass'y

Refer to Fig. 2.7.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.18.

(2) Remove F12 (Reel Hub Heads), then disassemble F13 (Reel Hub B Assemblies), F14 (Reel Hub Take-up

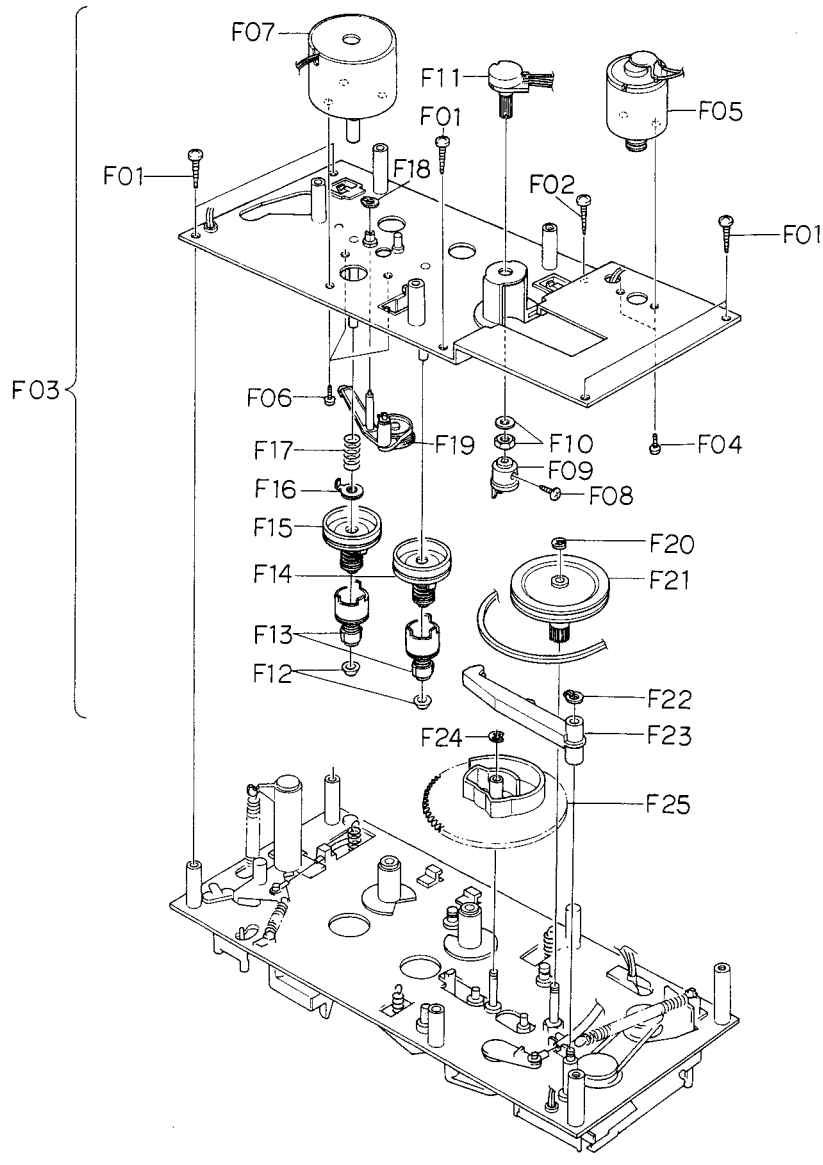


Fig. 2.7

Ass'y), F15 (Reel Hub Supply Ass'y), F16 (Back Tension Ass'y) and F17 (Back Tension Spring).
(3) Remove F18, then disassemble F19 (Idler Ass'y).

2.22. Cam Drive Gear and Control Cam

Refer to Fig. 2.7.
(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.18.
(2) Remove F20, then disassemble F21 (Cam Drive Gear).
(3) Remove F22, then disassemble F23 (Counter-Load Arm Ass'y).
(4) Remove F24, then disassemble F25 (Control Cam).

2.23. Head Mount Base Ass'y

Refer to Fig. 2.8.
(1) Refer to Fig. 2.5. Remove Cassette Case Ass'y referring to item 2.15.
(2) Remove F01, then disassemble F02 (Head Mount Base Ass'y).

2.24. Pressure Roller Ass'y and Erase Head

Refer to Fig. 2.8.
(1) Remove Head Mount Base Ass'y referring to item 2.23.
(2) Remove F03 and a washer, then disassemble F04 (Supply Pressure Roller Ass'y).
(3) Remove F05, then disassemble F06 (Erase Head).
(4) Remove F07 and a washer, then disassemble F08 (Take-up Pressure Roller Ass'y).

2.25. Playback Head Ass'y and Record Head Ass'y

Refer to Fig. 2.8.
(1) Remove Head Mount Base Ass'y referring to item 2.23.
(2) Turn F09 by 90° by pushing it, then disassemble F10 (Playback Head Ass'y).
(3) Turn F11 by 90° by pushing it, then disassemble F12 (Record Head Ass'y).

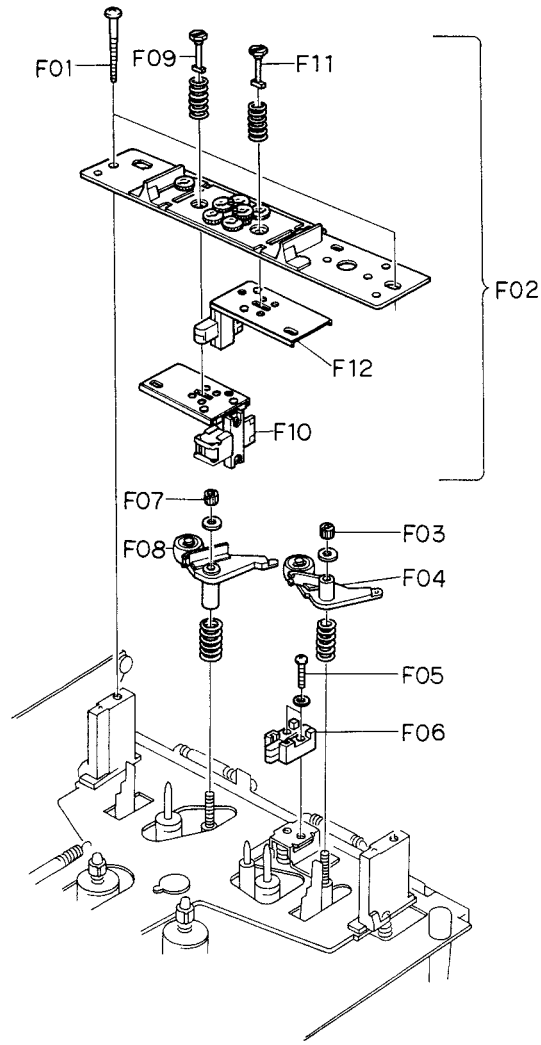


Fig. 2.8

3. MEASUREMENT INSTRUMENTS

(1) Audio Generator (20 Hz – 200 kHz)
(2) AC Millivolt Meter (with dB measures)
(3) Oscilloscope (DC – 5 MHz)
(4) Distortion Meter
(5) Speed & Wow/Flutter Meter
(6) Frequency Counter (DC – 1 MHz)
(7) Ohm Meter
(8) DC Volt Meter
(9) AC Volt Meter
(10) Torque Gauge (DA09013A)
(11) 15 kHz Azimuth Tape (DA09004A)
(12) 3 kHz Speed & Wow/Flutter Tape (DA09006A)
(13) 1 kHz Track Alignment Tape (DA09007A)
(14) 400 Hz Level Tape (DA09005A)
(15) 20 kHz PB Frequency Response Tape (DA09001A)
(16) 15 kHz PB Frequency Response Tape (DA09002A)
(17) 10 kHz PB Frequency Response Tape (DA09003A)
(18) Reference EXII Tape (DA09066A)
(19) Reference SX Tape (DA09025A)
(20) Reference ZX Tape (DA09037A)
(21) Tilt Check Gauge M-9039 (DA09039A)
(22) EH Tilt Check Gauge M-9040 (DA09040A)
(23) EH Stroke Check Gauge M-9051 (DA09051A)
(24) Stroke Check Gauge M-9047 (DA09047B)
(25) Record Head Mounting Gauge M-9048 (DA09048A)
(26) Back Tension Gauge (DA09055A)
(27) Tension Arm Adjustment Cassette (DA09056A)
(28) Audio Analyzer T-100
(including Distortion, Wow/Flutter, Speed, Oscillator and dB meters)

Note: (10) – (28) are the products of Nakamichi Corporation.

4. MECHANICAL ADJUSTMENTS

4.1. Mechanism Control Cam Adjustment

Before adjustment, disassemble the Front Panel Ass'y, then remove the Cover Plate Ass'y referring to items 2.4 and 2.15.

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Figs. 4.1 and 4.2.
Adjust VR602 and VR603 on the Control P.C.B. Ass'y to locate approximately at the middle of the variable range. Then turn ON the Power switch.
VR602 (for cam position stop)
VR603 (for cam position play)

(b) Press the Stop button to set the N-482Z in Stop mode. Adjust VR602 (for stop) so that the "S" mark on the Cam corresponds to the pointer on the mechanism chassis.

(c) Press the Play button to set the N-482Z in Playback mode.
(Cam will rotate, and the position marked with "PY" comes to the pointer.)
Adjust VR603 (for play) so that the "PY" mark on the Cam corresponds to the pointer.

(d) Repeat above (b) and (c) 2 – 3 times so that the "S" and "PY" marks on the Cam correspond to the pointer accurately in Stop and Playback modes respectively.
(This adjustment is required because the position adjusted by one volume will be slightly changed when the other volume is adjusted.)

(e) Set the N-482Z in F.F. or Pause mode by pressing each button and check to insure that the pointer is in a range of "F" or "PS" mark respectively.

(f) If out of the range, precise adjustment for each position according to "(2) Offset Fine Adjustment of Control Motor Driver" will be required.

(2) Offset Fine Adjustment of Control Motor Driver

Adjust only if a satisfactory result is not obtained in "(1) Offset Adjustment of Control Motor Driver". This adjustment is made by changing the value of the fixed resistors on the Logic P.C.B. Ass'y.

Note: The value of voltage is typical value.

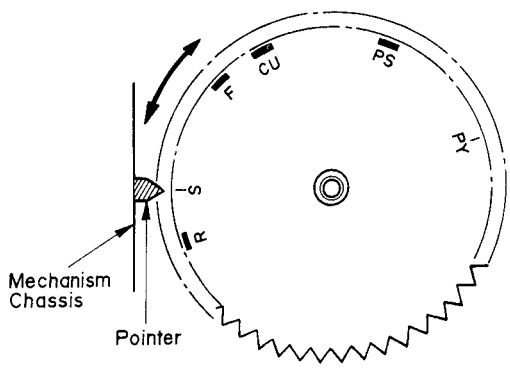


Fig. 4.1

(a) Observation Point of Reference Voltage

Observe the each voltage at the sliding contact of the Cam Control Volume VR601 (10 kΩ) in Stop, Fast (F.F. or Rew.), Pause and Playback modes.

(b) Reference Voltage

Reference voltage at the sliding contact of VR601 (Cam Control Volume) in each mode is as follows:

Mode	Reference Voltage (Typical Value)	
Stop	15 V	1.5 V ±0.25 V
Fast (F.F./Rew.)	13.5 V	
Pause	10 V	2.5 V ±0.4 V
Play	7.5 V	

(c) Resistors for Adjustment

Mode	Ref. No.	Typical Value
Stop	R466,R464	9.1 kΩ (F), 15 kΩ (F)
Fast (F.F./Rew.)	R463	56 kΩ
Pause	R410	680 kΩ
Play	R411	120 kΩ

(d) Adjustment Procedures

1) Press the Stop button to set the N-482Z in Stop mode. Adjust the value of R466 and R464 to obtain 15 V (±0.6 V) at the sliding contact of VR601.
Note: When R466 and R464 are adjusted, the reference voltage in Fast (F.F. or Rew.) mode is changed. Therefore, re-check of the reference voltage in Fast (F.F. or Rew.) mode is required. If the reference voltage is out of the range, readjustment of R463 according to next step 2) is necessary.

2) Set the N-482Z in F.F. mode, then adjust the value of R463 so that the voltage of VR601 will become lower by 1.5 V (±0.25 V) than in Stop mode.

3) Press the Pause button to set the N-482Z in Pause mode.
Adjust the value of R410 to obtain 10 V (+0.4, −0.15 V) at the sliding contact of VR601.

4) Set the N-482Z in Playback mode, then adjust the value of R411 so that the voltage of VR601 will become lower by 2.5 V (±0.4 V) than in Pause mode.

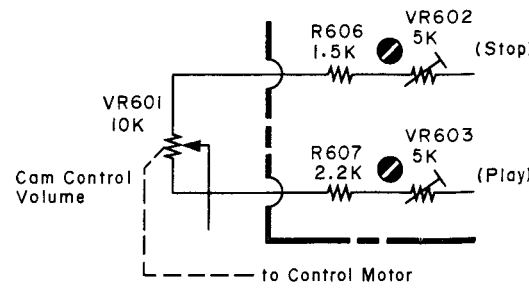


Fig. 4.2

(3) Cam Timing Adjustment

(a) Remove the wires from the Control Motor terminals to set the motor open.

(b) Without loading a cassette tape and with pressing the record protecting switch with your finger tip, press the Record and Play buttons to set the N-482Z in Record mode.

(c) Turn the Cam and bring the "PY" mark toward the pointer by hand.
Reel Motor will rotate before the "PY" mark reaches the pointer.
Adjust the value of R452 so that the voltage at the sliding contact of VR601 becomes 9.7 V (±0.3 V) when Reel Motor starts rotation.

(d) Observe the mute signal at the Q424 collector.
Turn the Cam referring to above step (c) and check to insure that the voltage at the sliding contact of VR601 is 9.5 V (±0.3 V) when mute is released (mute signal changes from H to L).
(This voltage is determined by the adjustment of R452 in above step (c).)

(e) Observe the (Play + Pause)-Position signal at the Q446 collector.
Turn the Cam referring to above step (c) and adjust the value of R445 to obtain 11.2 V (±0.4 V) at the sliding contact of VR601 when (Play + Pause)-Position signal changes from L to H (bias oscillation will begin).

(f) Upon completion of above adjustment, re-connect wires to the motor terminals.

4.2. Tape Speed Adjustment

(1) Remove the Top Cover Ass'y referring to item 2.2.

(2) Connect a Frequency Counter to the Output Jack.

(3) Load a 3 kHz Speed Wow/Flutter Tape (DA09006A) and play it back.

(4) Referring to Fig. 4.3, adjust the Tape Speed Adjustment Volume (VR501) incorporated in the Capstan Motor to obtain 3,000 Hz on the Frequency Counter.
CCW: Motor drives slowly.
CW: Motor drives fast.

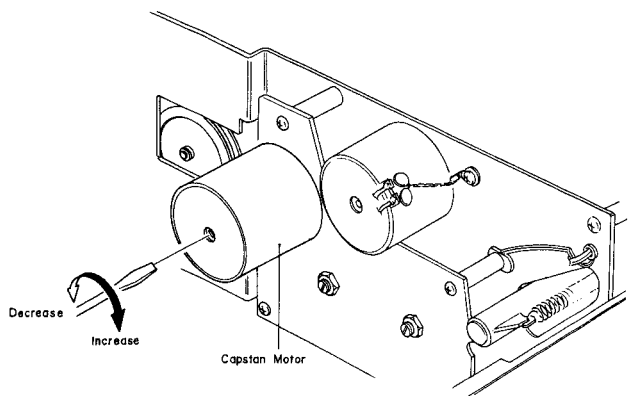


Fig. 4.3

4.3. Record Head and Playback Head Tilt Adjustment

Note: On items 4.3 – 4.9, refer to Fig. 4.4 flow chart.
Refer to Figs. 4.5 and 4.6.

(1) Load a Tilt Check Gauge M-9039 (DA09039A) in the N-482Z.

(2) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the N-482Z with the other end.

(3) Remove both of the Height Gears.

(4) Set the N-482Z in Play mode. Check to insure whether the Beacons Playback Head "Upper" or "Lower" and Record Head "Upper" or "Lower" are illuminating. In order not to give damages onto the head surfaces, push both of slide knobs of the Gauge to the direction of arrow marks, then return them to the original place to be in contact with record head and playback head surfaces after Play mode is securely locked.

(5) Check to insure freedom from contact between the Gauge and pad lifter.

(6) Beacon Playback Head "Lower" will light on when height adjustment screw (P) turned clockwise but Playback Head "Upper" when counterclockwise. Adjust so that both "Upper" and "Lower" will light on even when you move the slide knob to the direction of an arrow mark and then return them to the original place.

(7) Same procedures will apply to the Beacons Record Head "Upper" and "Lower", except for the height adjustment screw (R).

(8) Set the N-482Z in Stop mode and fit both of the serrated Height Gears. Then set the N-482Z again in Play mode and insure all of the 4 Beacons are illuminating. If not, (3) through (7) will have to be repeated till satisfactory results are obtained.

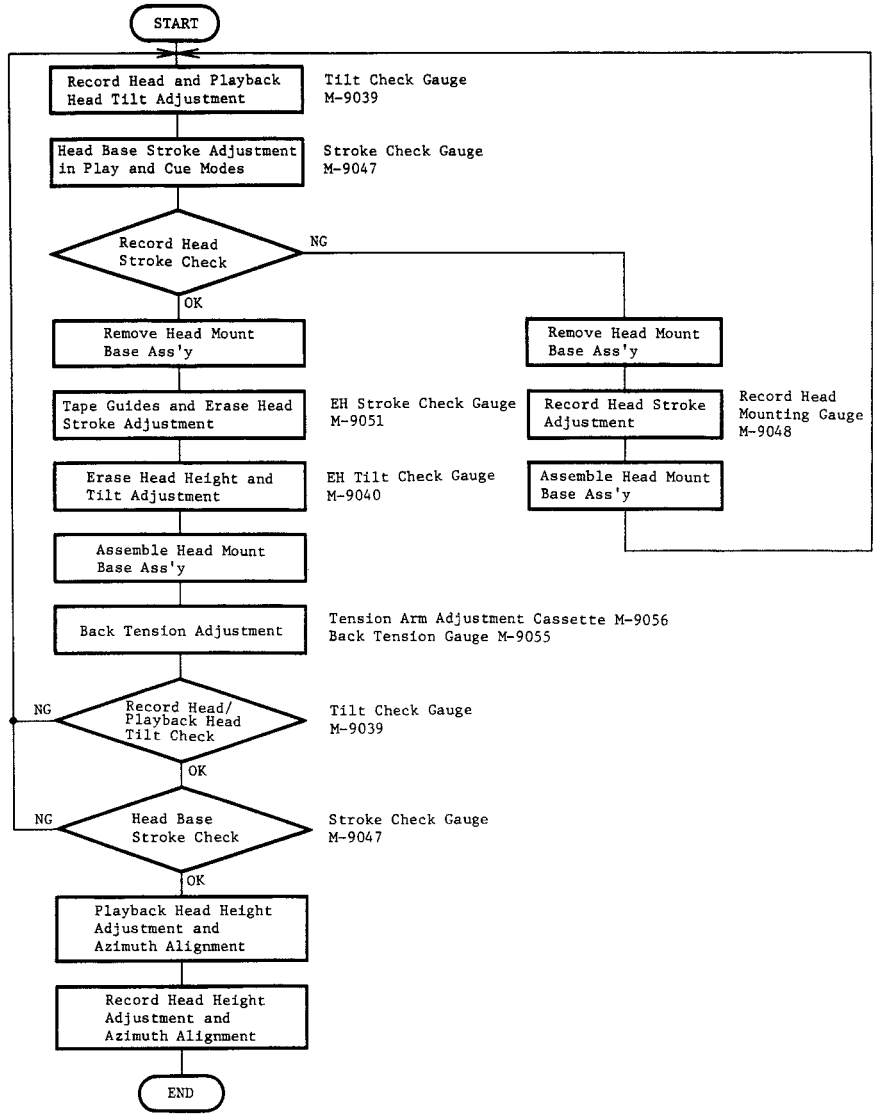

START
Record Head and Playback Head Tilt Adjustment
Tilt Check Gauge M-9039
Head Base Stroke Adjustment in Play and Cue Modes
Stroke Check Gauge M-9047
Record Head Stroke Check
NG
OK
Remove Head Mount Base Ass'y
Tape Guides and Erase Head Stroke Adjustment
EH Stroke Check Gauge M-9051
Erase Head Height and Tilt Adjustment
EH Tilt Check Gauge M-9040
Assemble Head Mount Base Ass'y
Back Tension Adjustment
Tension Arm Adjustment Cassette M-9056
Back Tension Gauge M-9055
Record Head/ Playback Head Tilt Check
NG
Tilt Check Gauge M-9039
OK
Head Base Stroke Check
NG
Stroke Check Gauge M-9047
OK
Playback Head Height Adjustment and Azimuth Alignment
Record Head Height Adjustment and Azimuth Alignment
END
Remove Head Mount Base Ass'y
Record Head Stroke Adjustment
Record Head Mounting Gauge M-9048
Assemble Head Mount Base Ass'y

Fig. 4.4

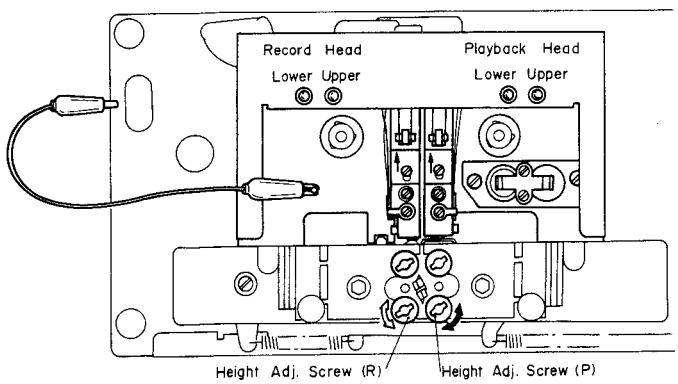


Fig. 4.5

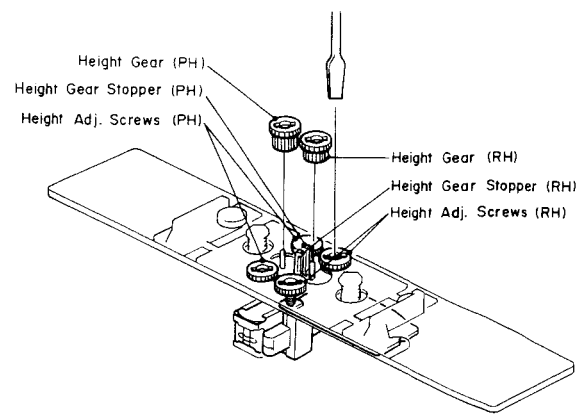


Fig. 4.6

4.4. Head Base Stroke Adjustment

Note: Before you conduct this adjustment, adjust with a "Tilt Check Gauge" to insure freedom from tilt on the playback head and record head.

Refer to Fig. 4.7.

(1) Load a Stroke Check Gauge M-9047 (DA09047B) in the N-482Z.

(2) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-482Z in Play mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.

(3) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.

(4) If the playback head stroke is noted to be misaligned, adjustment can be made by moving the stroke adjuster assembled in the head base assembly (either forwardly or backwardly).

(5) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.

(6) If the record head stroke is noted to be misaligned, adjustment can be made with a Record Head Mounting Gauge M-9048 (DA09048A).

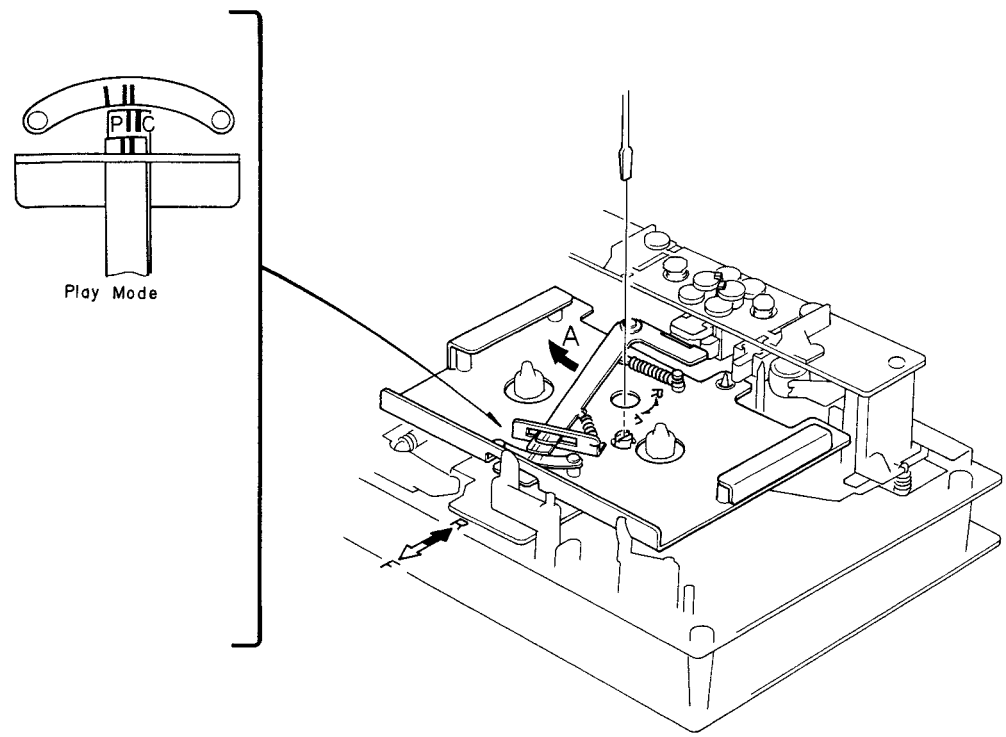


Fig. 4.7

4.5. Tape Guides Adjustment and Erase Head Stroke Adjustment

Remove Head Mount Base Ass'y referring to item 2.23. Refer to Figs. 4.8 and 4.9.

(1) Supply Tape Guide Height Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA0-9051A) in the N-482Z.
(b) Set the N-482Z in Play mode.
(c) Slide the Supply Tape Guide Check Bar down against the supply tape guide, thus check can be made on supply tape guide height.
(d) If the supply tape guide is misaligned, the Supply Tape Guide Check Bar will not come into the supply tape guide. If such is noted, turn to adjust the height adjustment nut A till the Supply Tape Guide Check Bar is accepted by the supply tape guide.
(e) If the above are insured, set the N-482Z in Pause mode, then in Play mode to see whether adjustments are appropriately made. If not, (b) through (e) will have to be repeated till satisfactory results are obtained.

(2) Take-up Tape Guide Height Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA0-9051A) in the N-482Z.
(b) Set the N-482Z in Play mode.
(c) Slide the Take-up Tape Guide Check Bar down against the take-up tape guide, thus check can be made on take-up tape guide height.
(d) If the take-up tape guide is misaligned, the Take-up Tape Guide Check Bar will not come into the take-up tape guide. If such is noted, turn to adjust the height adjustment nut C till the Take-up Tape Guide Check Bar is accepted by the take-up tape guide.
(e) If the above are insured, set the N-482Z in Pause mode, then in Play mode to see whether adjustments are appropriately made. If not, (b) through (e) will have to be repeated till satisfactory results are obtained.

(3) Erase Head Stroke Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA0-9051A) in the N-482Z.
(b) Set the N-482Z in Play mode, thus check can be made on erase head stroke through the EH Stroke Indicator.
(c) Check to insure whether the erase head surface is aligned with red line on the EH Stroke Indicator. If not, adjust the erase head stroke by loosening 2 screws B that assemble erase head and erase head plate.
(d) After completion of adjustment, 2 pcs. of screws shall be locked with lock tight paint.

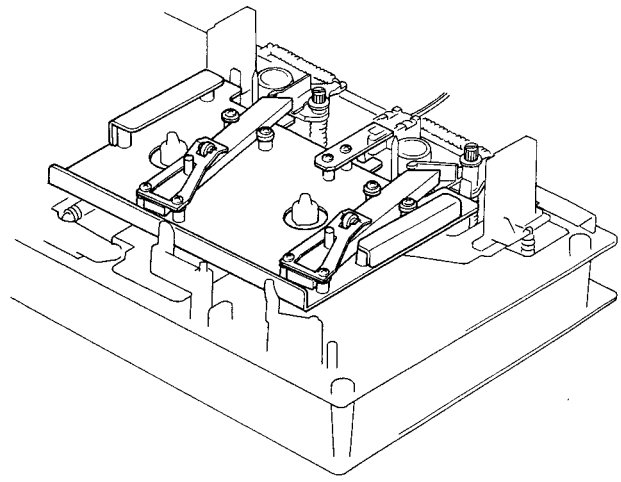


Fig. 4.8

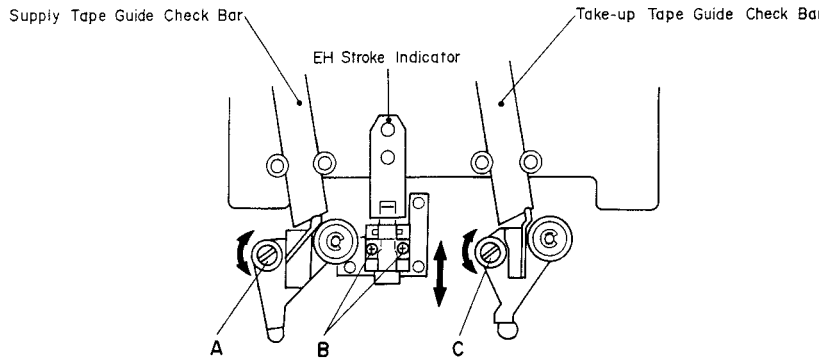


Fig. 4.9

4.6. Erase Head Height and Tilt Adjustment

Refer to Figs. 4.10 and 4.11.

(1) Remove Head Mount Base Ass'y referring to item 2.23.
(2) Load an EH Tilt Check Gauge M-9040 (DA09040A) in the N-482Z.
(3) Set the N-482Z in Stop mode.
(4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror as shown by an arrow mark and slowly turn the Screw "Height" counterclockwise (or clockwise) so that the two horizontal lines on the mirror will become superposed on the line (in different color) of the erase head, and check to insure whether Beacon "1" is illuminating.
(5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on Beacon "2". Excessive turning will cause the Beacon "1" to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the Beacons "1" and "2" illuminate.
(6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on Beacon "3". Excessive turning will cause either Beacon "1" or "2" to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons "1", "2" and "3" illuminate.
(7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
(8) After completion of adjustment, 3 pcs. of screws shall be locked with lock tight paint.

Note: Before use of this gauge, check to insure freedom from dust or dirts, or overflow in the groove of the erase head surface.

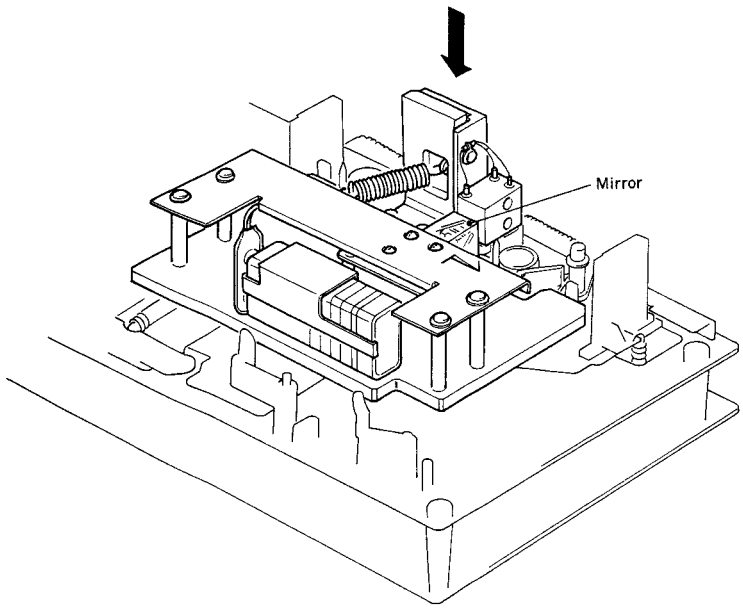


Fig. 4.10

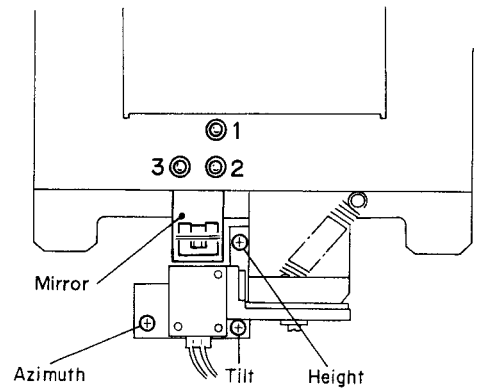


Fig. 4.11

4.7. Back Tension Adjustment

Refer to Figs. 4.12 – 4.14.

(1) Load a Tension Arm Adjustment Cassette (DA0-9056A) in the N-482Z referring to Fig. 4.12.
(2) Set the N-482Z in Play mode.
(3) Bend the Back Tension Arm with pliers so that the gap between the Cassette Holding Spring assembled on the Head Base Ass'y and the Back Tension Arm becomes 0.5 mm as shown in Fig. 4.13. Do not bend the top of the Back Tension Arm.
(4) Load the Back Tension Gauge (DA09055A) in the N-482Z.
(5) Set the N-482Z in Play mode and read the torque value of Back Tension Gauge.
If the value is in a range of 6 g-cm to 10 g-cm, adjustment is not necessary. If not, change the installation point of the Back Tension Spring as shown in Fig. 4.14, and obtain the torque of 7 g-cm to 9 g-cm range.

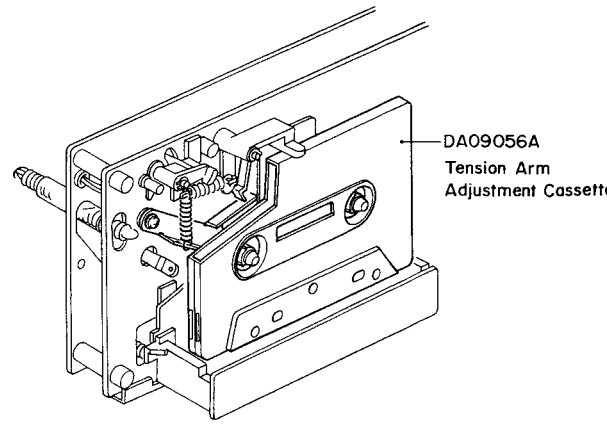


Fig. 4.12

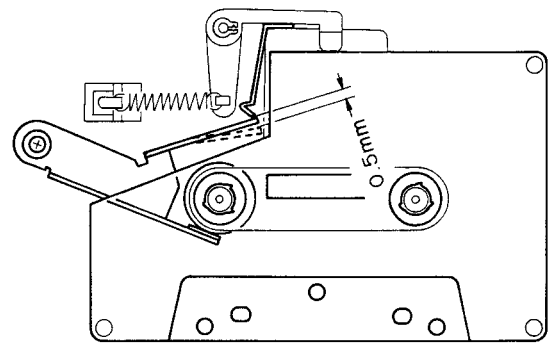


Fig. 4.13

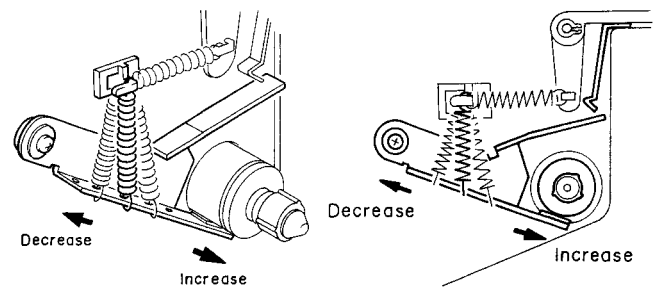


Fig. 4.14

4.8. Playback Head and Record Head Height Adjustment and Azimuth Alignment

(1) Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.15.

(a) Connect a VTVM to the Output Jacks.
(b) Set the Monitor switch to Tape and Eq. switch to 70 μs.
(c) Load a 1 kHz Track Alignment Tape (DA09007A), then set the N-482Z in Play mode.
(d) Turn the PH Height Gear until the outputs of both channels become minimum.
(e) Load a 15 kHz Azimuth Tape (DA09004A), then set the N-482Z in Play mode.
(f) Turn the PH Azimuth Alignment Screw until the outputs of both channels become maximum.
(g) Repeat (c) through (f) one or two times to obtain optimum performance.

(2) Record Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.15.

(a) Connect a VTVM to the Output Jacks.
(b) Set the Bias Tune Volume to the center position.
(c) Set the Monitor switch to Tape, Eq. switch to 70 μs, and Tape Selector switch to SX.
(d) Load a Reference SX Tape (DA09025A), then set the N-482Z in Record and Play mode.
(e) Feed in 400 Hz (0 dB), then turn the RH Height Gear until the outputs of both channels become maximum.
(f) Feed in 15 kHz (−20 dB), then turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.
(g) Repeat (e) and (f) one or two times to obtain optimum performance.
(h) After completion of above adjustment, feed in 400 Hz (0 dB) and record it to the same portion of both sides A and B of the tape.
(i) Immerse the recorded tape in a magnetized developing solution. In turn, check to insure that the recording head tracks across the center are separated with a distance of 0.55 to 0.75 mm (typically 0.65 mm) as illustrated in Fig. 4.16.

Note: Liquid for tape magnetized development solution
"MAGNA-SEE, SOUND CRAFT a product of CBS RECORDS a division of Columbia Broadcasting System, Inc., Danbury, Conn. 06810 U.S.A., or equivalent".
After development, clean the tape otherwise pressure rollers and heads will become dirty.

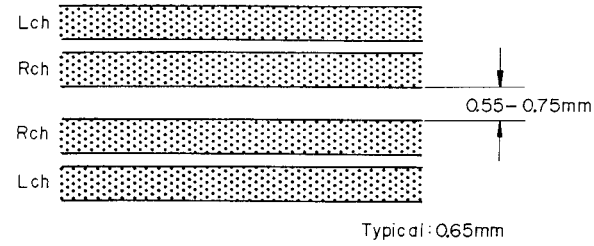


Fig. 4.16

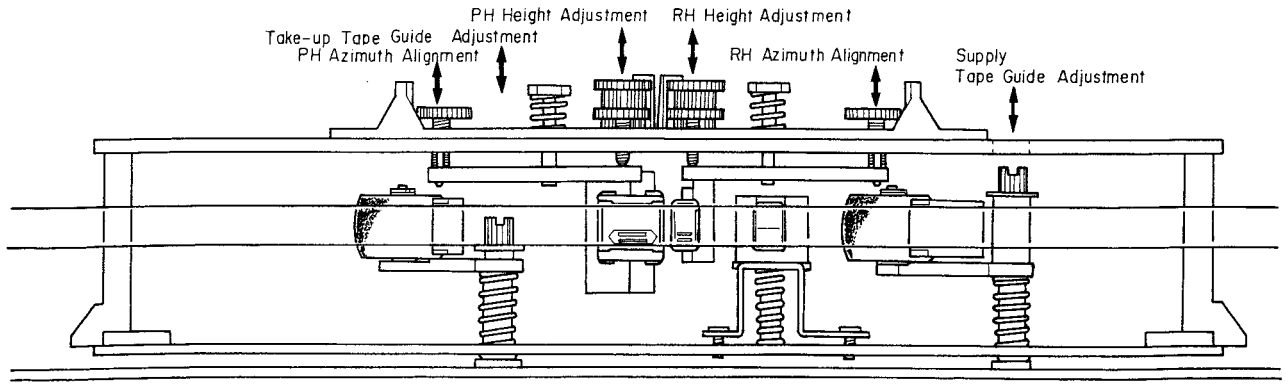


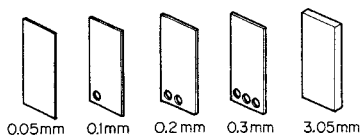
Fig. 4.15

4.9. Record Head Stroke Adjustment

Refer to Figs. 4.17 and 4.18.

Note: This adjustment will be required only to insure freedom from misalignment of the record head stroke in the record head stroke check mode.

(1) Check the accuracy of the record head stroke.
(2) Remove Head Mount Base Ass'y referring to item 2.23.
(3) Remove the record head assembly.
(4) Adjustment of Record Head Mounting Gauge M-9048 (DA09048A)
  (a) Mount the Block B onto the Mounting Gauge Plate.
  (b) Loosen the 2 screws fixing the Block A.
  (c) As shown in Fig. 4.17, hold the Gauges (3.05 mm and 0.1 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.
(5) Remove the Block B from the Mounting Gauge Plate.
(6) As shown in Fig. 4.18, mount the R-8L record head assembly onto the Mounting Gauge Plate, then check the location of the R-8L record head surface. (If record head contacts to the Block C, loosen 2 pcs. of screws that assemble record head and record head plate, then place the R-8L record head assembly onto the Plate.)
(7) Remove the R-8L record head assembly from the Mounting Gauge Plate.
(8) Readjustment of Record Head Mounting Gauge M-9048 (DA09048A)
  (a) Mount the Block B onto the Mounting Gauge Plate.
  (b) Loosen the 2 screws fixing the Block A.
  (c) As shown in Fig. 4.17, hold the Gauges (3.05 mm and either one of 0.05, 0.15, 0.2, 0.25, 0.3 or 0.35 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.
(9) Remove the Block B from the Mounting Gauge Plate.
(10) Mount the R-8L record head assembly onto the Mounting Gauge Plate.
(11) As shown in Fig. 4.18, loosen 2 pcs. of screws that assemble record head and record head plate.
  As the location of the Block A is secured by the item (8)-(c), push the record head to the directions A and B, then tighten 2 pcs. of screws.
(12) Check to insure freedom from gap between the Block C and record head surface, then tighten the 2 pcs. of screws on the record head assembly with lock tihgt paint.
(13) Remove the R-8L record head assembly from the Mounting Gauge Plate.
(14) Assemble the record head assembly to the head mount base assembly.
(15) Assemble the head mount base assembly to the mechanism assembly.
(16) Check the record head stroke.
  If the above are inaccurate, items (1) through (16) will have to be repeated till satisfactory results are obtained.



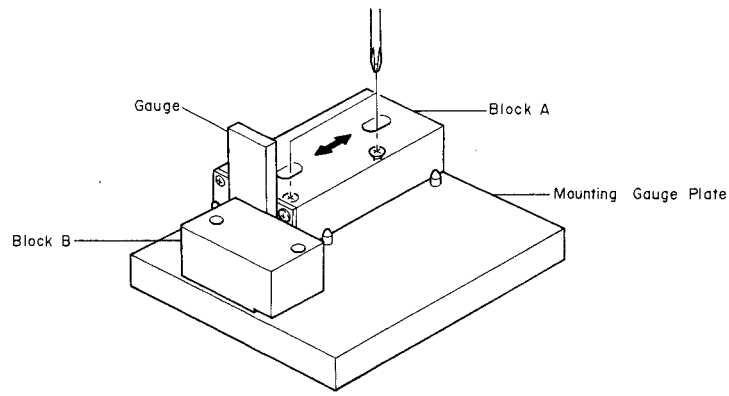


Fig. 4.17

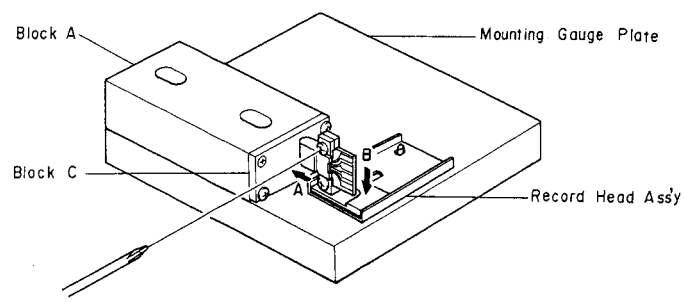


Fig. 4.18

4.10. Tape Travelling Adjustment

The adjustment shall be made with a modified version of the current type EXII C-90 as shown in Fig. 4.19 (error will be made if a previous type Tape Travelling Cassette (DA09011A) should be used for this purpose).

While modifying an EXII C-90, the tape guides in the cassette housing shall be kept protected to avoid tilt. Check shall be made in the following procedures:

(1) An EXII C-90 tape thus modified shall be loaded onto the N-482Z.

(2) Release the back-tension (rotate the Supply Reel and feed out some length of tape) and set the N-482Z in Play mode.

(3) In this juncture, check to insure whether the tape is free from waving or slippage from the tape guide.

(4) When the modified EXII C-90 is played back, check to insure whether the tape is freedom from waving from head surface or at pressure rollers.

(5) If either of waving or slippage from the tape guide should be noted, adjustments of "4.3. Record Head and Playback Head Tilt Adjustment", "4.4. Head Base Stroke Adjustment", "4.5. Tape Guides Adjustment and Erase Head Stroke Adjustment", "4.6. Erase Head Height and Tilt Adjustment", "4.7. Back Tension Adjustment", "4.8. Playback Head and Record Head Height Adjustment and Azimuth Alignment", "4.9. Record Head Stroke Adjustment", etc. will be required.

As a case may be, the said waving or slippage may have been caused from defective supply Pressure Roller Ass'y or Take-up Pressure Roller Ass'y without parallel contact with capstans. If such are noted, the Pressure Roller Assemblies will have to be replaced.

Further, excessively weak take-up torque or strong take-up torque may cause defective tape travelling.

The N-482Z is intended to be an adjustment-free Model, however if the similar matters as above should be noted, please replace the Reel Hub Ass'y to obtain appropriate take-up torque.

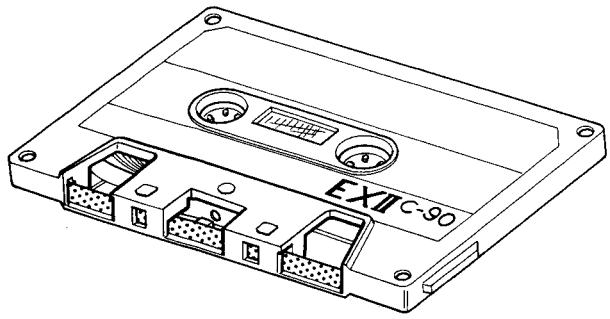


Fig. 4.19

4.11. Flywheel Holder Adjustment

(1) Refer to Fig. 4.20.
Tighten the Thrust Screws until the gap between the Flywheel Assemblies and Thrust Screws becomes minimized when both of the Capstan Shafts are moved backwardly and forwardly (the Thrust Springs between the Capstan Flanges and Flywheel Thrust Caps are in a flat state).
Excessive tightening of the Thrust Screws however will give damages on the Flywheel Assemblies, to which careful attention is invited.

(2) Return the Thrust Screws by 1/2 turn.

(3) Fixing the Thrust Screws with a screwdriver, lock the Lock Nut.

(4) Apply a quantity of lock tight paint to the Thrust Screws.

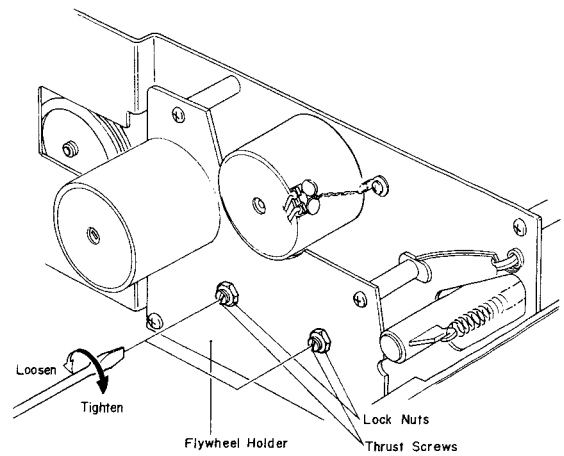


Fig. 4.20

4.12. Eject Wire Adjustment

(1) Referring to Fig. 4.21, insert a 1.5 mm spacer between the Eject Arm and Eject Stopper by turning the Eject Arm in the illustrated direction, then set the N-482Z in Playback mode.
(2) With pushing the Eject Arm by hand, loosen the screw and then pull the Eject Wire in the direction of the arrow until it stops as shown in Fig. 4.22.
(3) Tighten the screw, then apply a quantity of lock tight paint.

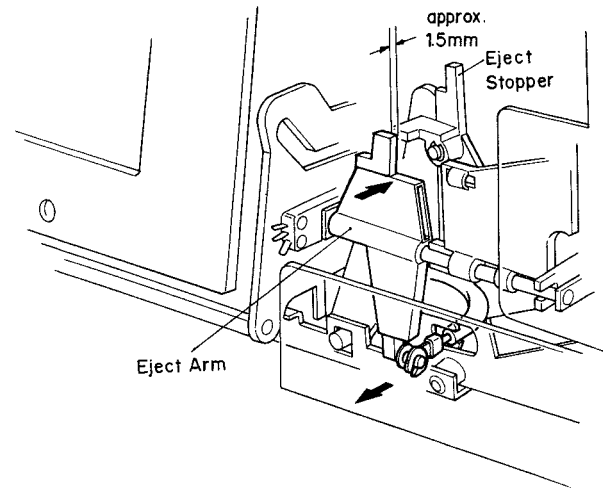


Fig. 4.21

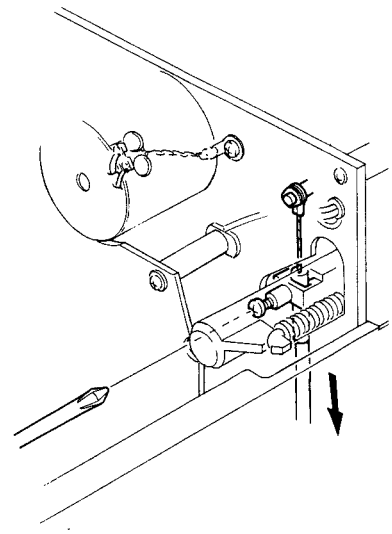


Fig. 4.22

4.13. Lubrication

N-482Z is a lubrication-free cassette deck except when parts are replaced. Apply the following lubricant for each replaced part:

(1) LAUNA #100
  Capstan Shaft
  Pressure Roller Shaft
  Thrust Cap
(2) FLOIL GB-TS-1
  Reel Hub Shaft
  Thrust portion on the Capstan Shaft
  FLOIL GB-TS-1, made by Kanto Chemicals Co., Ltd. in Japan.
  We suggest that you use the above or equivalent type. If unavailable please contact Kanto Chemicals Co., Ltd., 2-7 Kanda Suda-cho Chiyoda-ku, Tokyo 101 Japan.
(3) Silicon Oil #3000 CST
  Air Damper Piston
  Note: Excessive lubrication may cause defective damper action as the 0.2^{ϕ} hole at the end of the cylinder may be filled with oil.

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

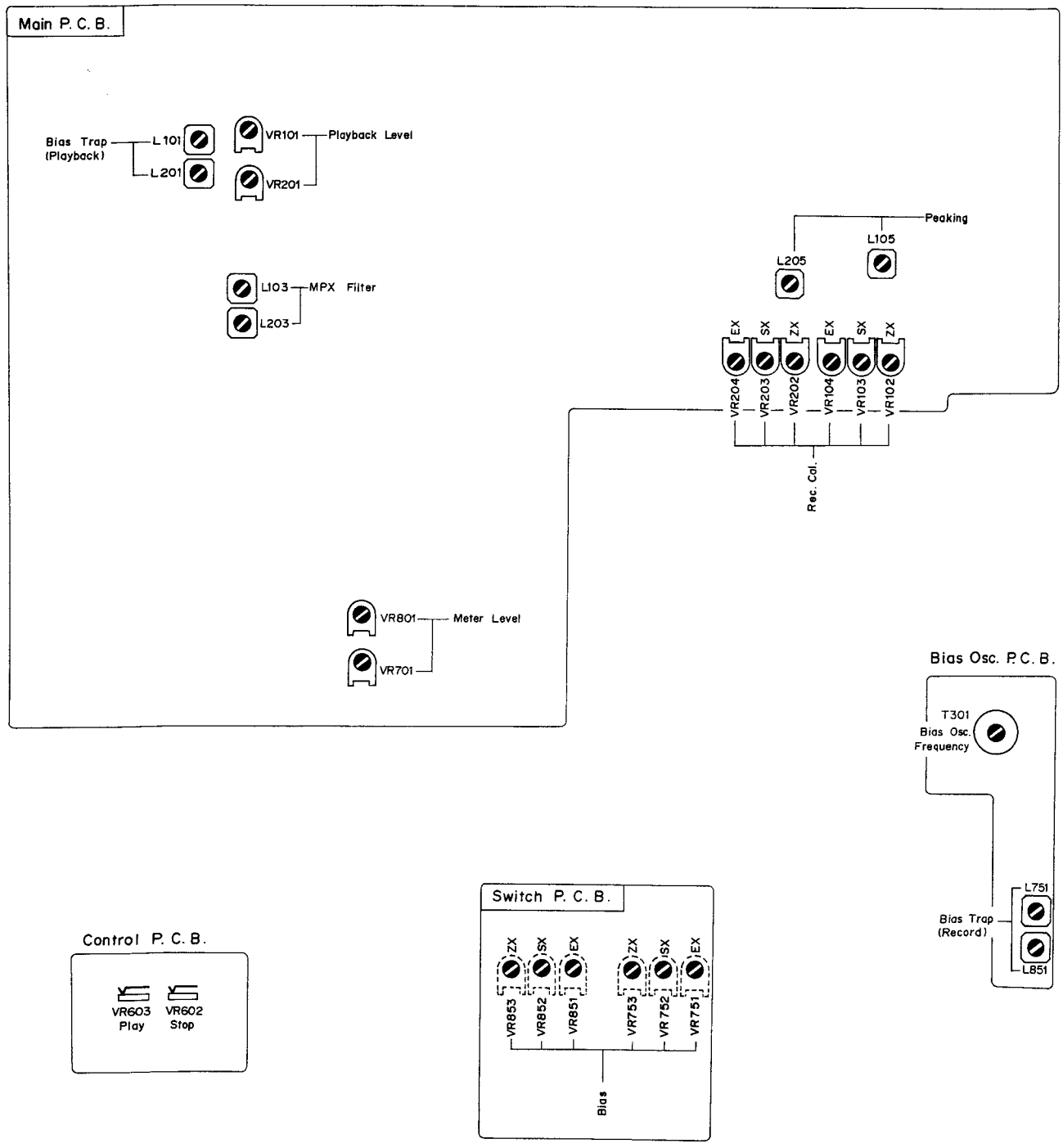


Fig. 5

6. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

6.1. Adjustment and Measurement Instructions

Note: Electrical adjustment should be performed after mechanical adjustment is completed.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006A)	Frequency Counter to Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μs	Capstan Motor Governor P.C.B. VR501	Adjust VR501 to obtain 3 kHz ±0.5%. (VR501 is incorporated in the capstan motor.)
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to TP101, TP201 on the Main P.C.B.	Monitor SW — Source	Main P.C.B. VR701, VR801	1. Feed in 400 Hz, then adjust the Input Level controls to obtain 90 mV —0.4 dB on the VTVM. 2. Adjust VR701 (VR801) so that the 0 dB segment of the level meter starts illuminating. 3. Adjust the Input Level controls to obtain 90 mV on the VTVM, then decrease the generator output level by 20 dB. 4. Check to insure that the segment for —20 dB illuminates.
3	MPX Filter Adjustment	19 kHz ±100 Hz to Input Jacks	VTVM to Output Jacks	Monitor SW — Source MPX SW — OUT/IN	Main P.C.B. L103, L203	1. Adjust Input Level controls to obtain 600 mV on the VTVM. 2. Set the MPX Filter switch to IN, then adjust L103 (L203) to obtain the minimum reading on the VTVM (the minimum reading will be less than —30 dB).
4	Playback Head Track Alignment	1 kHz Track Alignment Tape (DA09007A)	VTVM to Output Jacks	Playback Monitor SW — Tape Tape SW — SX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT	PH Height Gear	Adjust the PH Height Gear to obtain minimum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.8.
5	Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004A)	VTVM to Output Jacks	Same as above	Playback Head Azimuth Alignment Screw	Adjust the Playback Head Azimuth Alignment Screw to obtain the maximum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.8. Note: Repeat steps 4 and 5 one or two times to obtain optimum performance.
6	Playback Level Calibration	400 Hz Level Tape (DA09005A)	VTVM to TP101, TP201	Same as above	Main P.C.B. VR101, VR201	Adjust VR101 (VR201) to obtain 90 mV on the VTVM.
7	Playback Frequency Response	400 Hz Level Tape (DA09005A) 10 kHz PB Frequency Tape (DA09003A) 15 kHz PB Frequency Tape (DA09002A) 20 kHz PB Frequency Tape (DA09001A)	VTVM to Output Jacks	Same as above	Main P.C.B. R112, R212	1. Load a 400 Hz level tape and play it back. 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. 3. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. If not, obtain satisfactory results by shorting R112 (R212). 10 kHz (—20 dB) —2 dB to +2 dB 15 kHz (—20 dB) —2 dB to +3 dB 20 kHz (—20 dB) —2 dB to +4 dB Check to insure that the difference in level between 10 kHz (—20 dB) and 20 kHz (—20 dB) is less than 2 dB. 4. Conduct step 5 "Playback Head Azimuth Alignment". 5. If above is not sufficient, refer to "Playback Frequency Response Adjustment" in item 6.2.

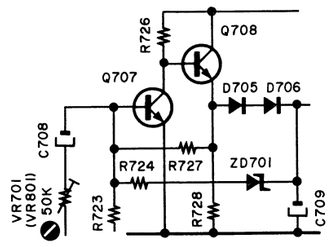


Fig. 6.1
2. Meter Level

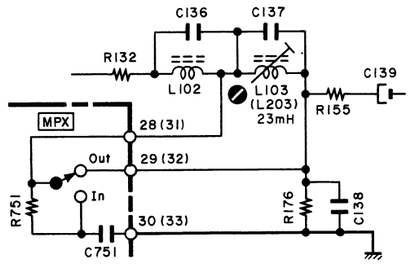


Fig. 6.2
3. MPX Filter

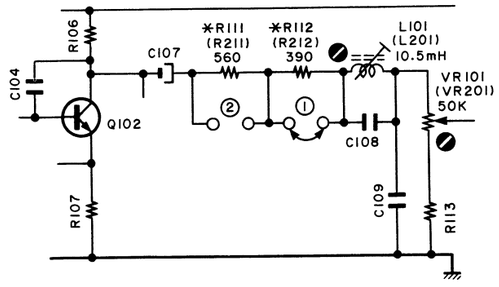


Fig. 6.3
6. Playback Level
7. Playback Frequency Response

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
8	Bias Oscillation Frequency and Erase Current Adjustment	External 0.1 Ω Resistor in series to Erase Head	VTVM and Frequency Counter across the 0.1 Ω Resistor	Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT	Bias Oscillator P.C.B. R352, R353	1. Set the Bias Tune Volume to center position. 2. Adjust T301 to obtain 105 kHz on the frequency counter. 3. Check the erase current by the VTVM. Erase current will be in a range of 310 mA to 400 mA (typically approx. 350 mA). If erase current is not sufficient, increase it by shorting R352 or R353. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency.
9	Record Amplifier Equalizer Adjustment	21 kHz (—20 dB) to Input Jacks	VTVM to CN5-1, CN5-3 on Bias Oscillator P.C.B.	Same as above	Main P.C.B. L105, L205	1. Remove the bias-cut-jumper from the dip side of the Bias Oscillator P.C.B. 2. Adjust L105 (L205) to obtain peak reading at 21 kHz on the VTVM. 3. Re-solder the bias-cut-jumper.
10	Bias Trap Adjustment (Record Amp.)	Remove Input Signals	VTVM to Terminal No. 45, 61 on Bias Oscillator P.C.B.	Same as above	Bias Oscillator P.C.B. L751, L851	1. Set the Bias Tune Volume to center position. 2. Adjust L751 (L851) to obtain the maximum reading on the VTVM.
11	Bias Trap Adjustment (Playback Amp.)	Remove Input Signals	VTVM to Output Jacks	Record, Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT	Main P.C.B. L101, L201	1. Set the Bias Tune Volume to center position. 2. Adjust L101 (L201) to obtain the minimum reading on the VTVM.
12	Record Head Height Adjustment	400 Hz (0 dB) to Input Jacks	VTVM to Output Jacks	Record, Playback Monitor SW — Tape Tape SW — SX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT	RH Height Gear	1. Set the Bias Tune Volume to center position. 2. Adjust the RH Height Gear to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 4.8.
13	Record Head Azimuth Alignment	15 kHz (—20 dB) to Input Jacks	VTVM to Output Jacks	Same as above	Record Head Azimuth Alignment Screw	1. Set the Bias Tune Volume to center position. 2. Adjust the Record Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 4.8. Note: Repeat steps 12 and 13 one or two times to obtain optimum performance.

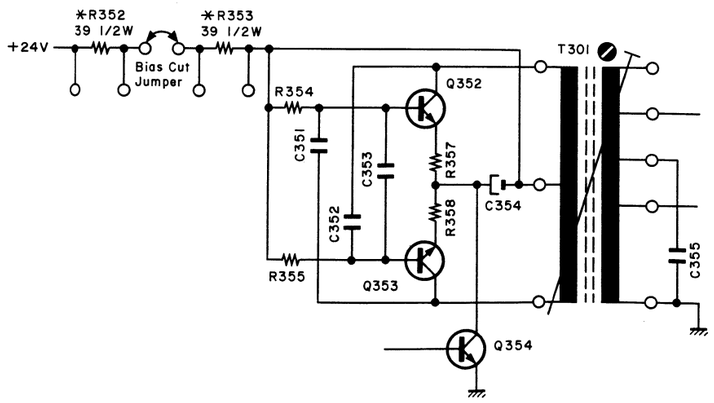


Fig. 6.4
8. Bias Oscillation Frequency and Erase Current

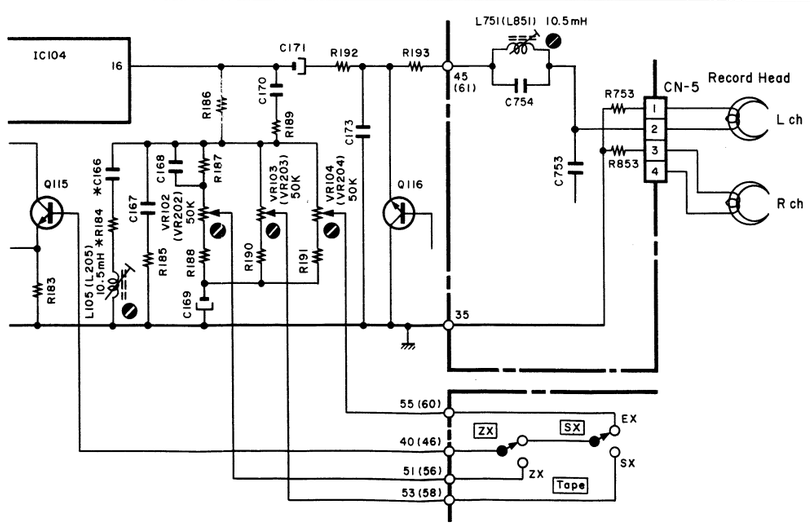


Fig. 6.5
9. Record Amplifier Equalizer
10. Bias Trap (Record Amp.)
14. Record Level
15. Overall Frequency Response

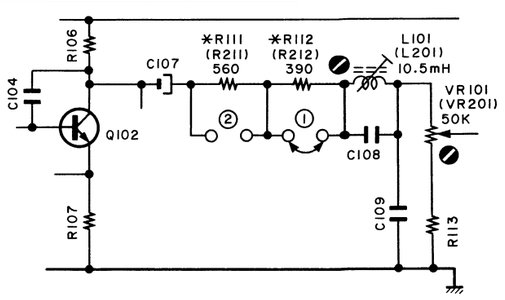


Fig. 6.6
11. Bias Trap (Playback Amp.)

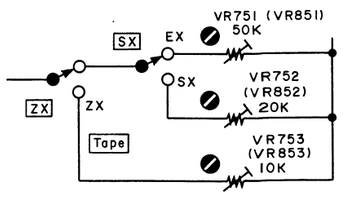


Fig. 6.7
14. Recording Bias Current

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
14	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 dB), 10 kHz and 18 kHz (—20 dB) to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record, Playback Monitor SW — Source/Tape Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — ON, C-Type/ B-Type/OFF MPX SW — OUT	Main P.C.B. (Record Level) ZX: VR102, VR202 SX: VR103, VR203 EX: VR104, VR204 Switch P.C.B. (Bias Current) ZX: VR753, VR853 SX: VR752, VR852 EX: VR751, VR851	Adjustment should be made in the order of ZX, SX and EX. 1. Set the Bias Tune Volume to center position. 2. Set the Monitor switch to Source and Dolby NR switch to C-Type. 3. Feed in 400 Hz, then set the Input Level controls to obtain 0 dB (600 mV) on the VTVM. 4. Set the Monitor switch to Tape. 5. Load a reference ZX tape (DA09037A), reference SX tape (DA09025A) and reference EXII tape (DA09066A). 6. Adjust Record Cal. VR102 (VR202) (for ZX), VR103 (VR203) (for SX) and VR104 (VR204) (for EX) to center position. 7. Feed in 400 Hz (0 dB), then record and play it back. Adjust Bias VR753 (VR853) (for ZX), VR752 (VR852) (for SX) and VR751 (VR851) (for EX) to obtain the maximum readings on the VTVM. 8. Feed in 18 kHz (—20 dB), then adjust Bias VR753 (VR853) (for ZX), VR752 (VR852) (for SX) and VR751 (VR851) (for EX) to obtain the same readings as source monitor levels on the VTVM. 9. Feed in 400 Hz (0 dB), then adjust Record Cal. VR102 (VR202) (for ZX), VR103 (VR203) (for SX) and VR104 (VR204) (for EX) to obtain 0 dB on the VTVM. 10. Repeat above 8 and 9 two or three times to obtain optimum performance. 11. Set the Dolby NR switch to OFF. 12. Feed in 10 kHz (—20 dB) and 18 kHz (—20 dB), then record and play them back. Check to insure that the levels are within —20 dB ±3 dB against the levels in Dolby NR C-Type. 13. Set the Dolby NR switch to B-Type. 14. Feed in 10 kHz (—20 dB) and 18 kHz (—20 dB), then record and play them back. Check to insure that the levels are within —20 dB ±2 dB against the levels in Dolby NR OFF. 15. Check to insure whether the total harmonic distortion is less than 0.9% for ZX tape and 1.0% for SX and EXII tapes. 16. If above is not sufficient, repeat 7 to 15 till satisfactory results are obtained.
15	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 18 kHz (—20 dB) to Input Jacks	VTVM to Output Jacks	Record, Playback Monitor SW — Source/Tape Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — OFF MPX SW — OUT	Main P.C.B. L105, L205	1. Set the Bias Tune Volume to center position. 2. Set the Monitor switch to Source. 3. Feed in 400 Hz (0 dB) and adjust Input Level controls to obtain 0 dB on the VTVM. 4. Decrease the generator output level by 20 dB. 5. Set the Monitor switch to Tape, then record and play it back. 6. Feed in 20 Hz to 18 kHz (—20 dB), and check to insure if the output levels are within —20 dB ±4 dB. 7. If above is not sufficient, adjust L105 (L205) to obtain approx. —20 dB on the VTVM. Then, conduct step 14 "Record Level Calibration and Recording Bias Current Adjustment" 8. If above is not sufficient, precise re-adjustment of step 7 "Playback Frequency Response", replacement of Playback Head or Record Head, or check on item 4.10 "Tape Travelling Adjustment" will be required.
16	Crosstalk Measurement	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT		1. Set the Bias Tune Volume to center position. 2. Erase the tape with bulk eraser. 3. Adjust the Input Level controls to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). 4. Turn the cassette tape the other way round and play it back. 5. Measure the difference between 3 and 4.
17	Channel Separation Measurement	1 kHz to Input Jacks	Same as above	Same as above		1. Set the Bias Tune Volume to center position. 2. Erase the tape with bulk eraser. 3. Adjust L ch (R ch) Input Level control to obtain 0 dB on the VTVM, and close R ch (L ch) Input Level control. 4. Record and play it back, then measure the R ch (L ch) level.
18	Erasure Measurement	100 Hz to Input Jacks	100 Hz Band Pass Filter and VTVM to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OUT		1. Set the Bias Tune Volume to center position. 2. Erase the tape with bulk eraser. 3. Adjust Input Level controls to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). 4. Rewind the tape, close Input Level controls, and then record again. 5. Rewind the tape, play it back, and then measure the difference between 3 and 4.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
19	Signal to Noise Ratio Measurement	400 Hz to Input Jacks	IHF-A Curve Filter, Distortion Meter and VTVM to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — ON, B-Type/C-Type MPX SW — OUT		1. Set the Bias Tune Volume to center position. 2. Set the Dolby NR switch to B-Type/C-Type. 3. Feed in 400 Hz, then record and play it back. 4. Adjust the Input Level controls to obtain 3% total harmonic distortion in playback mode. 5. Close the Input Level controls then record. 6. After rewound, play back and check the output level difference between 4 and 5. Note: The filter of IHF-A curve shall be used in the measurements.
20	Total Harmonic Distortion Measurement	400 Hz to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — OFF MPX SW — OUT		1. Set the Bias Tune Volume to center position. 2. Adjust the Input Level controls to obtain 0 dB on the VTVM. 3. Record and play it back. 4. Read the distortion meter and check to insure that the distortion is as follows: EXII . . . . . 1.0% or less SX . . . . . 1.0% or less ZX . . . . . 0.9% or less
21	Wow/Flutter Measurement	3 kHz Speed and Wow/Flutter Tape (DA09006A)	Wow/Flutter Meter to Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μs		Play back and read the wow/flutter meter.

6.2. Playback Frequency Response Adjustment

Fig. 6.8 shows a playback equalization curve and Fig. 6.9 is the playback amp. circuit for adjustment.

(1) Level Adjustment (for middle frequency response)

This adjustment will be required if playback level is not sufficient when 10 kHz PB frequency response tape is played back as referred to step 7 in 6.1 "Adjustment and Measurement Instructions".

Playback equalization level is varied by the modification of R108 (R208) and R109 (R209) on the Main P.C.B.

Following are the details for level modifications:

Approx. +1 dB . . . . . R108 (R208): 3.0K
R109 (R209): 4.3K
0 dB . . . . . R108 (R208): 2.7K
R109 (R209): 3.9K
Approx. −1 dB . . . . . R108 (R208): 2.4K
R109 (R209): 3.6K

(2) Peaking Adjustment (for high frequency response)

This adjustment will be required if playback level is not sufficient when 20 kHz PB frequency response tape is played back as referred to step 7 in 6.1 "Adjustment and Measurement Instructions".

Peaking portion compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R112 (R212) or R111 (R211) as illustrated in Fig. 6.8.

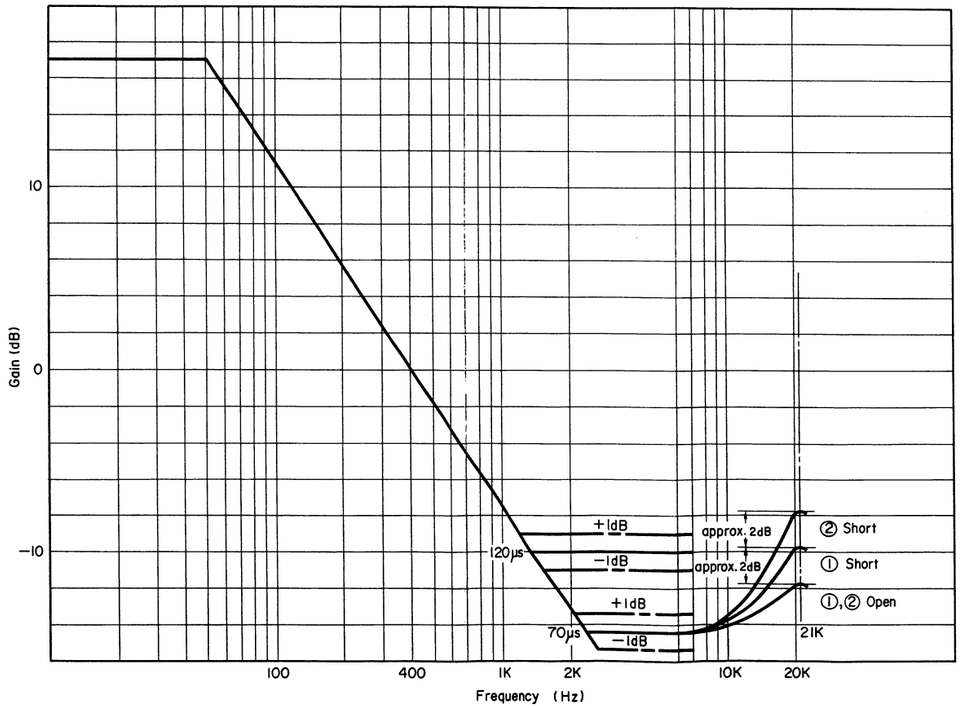


Fig. 6.8 Playback Equalization Curve

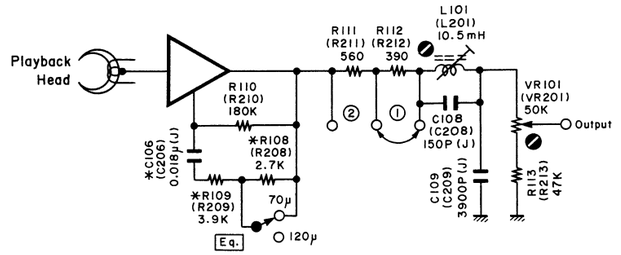


Fig. 6.9 Playback Amp.

6.3. Dolby NR Circuit Check

Dolby NR circuit incorporates a Dolby NR IC (μA7300-PC) which has no adjustment point.
Perform the following checks and make sure that the IC operates accurately, i.e., accuracy of frequency response through IC.

6.3.1. Dolby NR B-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to negative side of C125 (C225) on Main P.C.B. (positive side is connected to IC102-9 (IC202-9)).
Output Connection: VTVM to test point TP101 (TP201) on Main P.C.B.
Mode: Stop
Monitor SW – Tape
Dolby NR SW – ON, B-Type/ OFF

(a) Connect a VTVM to TP101 (TP201) on the Main P.C.B.
(b) Set the Dolby NR switch to B-Type.
Feed in 1.4 kHz and adjust the generator output control to obtain 9 mV on the VTVM.
(c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +3.2 dB ±1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks
Output Connection: VTVM to test point TP101 (TP201) and IC104-14 (IC204-14) on Main P.C.B.
Mode: Stop
Monitor SW – Source
Dolby NR SW – ON, B-Type/ OFF

(a) Connect a VTVM to TP101 (TP201) on the Main P.C.B.
(b) Feed in 1.4 kHz and adjust the Input level controls to obtain 9 mV/2.85 mV on the VTVM.
(c) Remove the VTVM from TP101 (TP201) and re-connect it to IC104-14 (IC204-14).
(d) Check to insure that the reading at IC104-14 (IC204-14) corresponds to the following with Dolby NR switch OFF and B-Type.

Input Level at TP101 (TP201)	Level at IC104-14 (IC204-14)	
	Dolby NR OFF	Dolby NR B-Type
10 mV	0 dB	+3.2 dB ±1.5 dB
3.16 mV	0 dB	+8.2 dB ±1.5 dB

6.3.2. Dolby NR C-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to negative side of C125 (C225) on Main P.C.B. (positive side is connected to IC102-9 (IC202-9)).
Output Connection: VTVM to test point TP101 (TP201) on Main P.C.B.
Mode: Stop
Monitor SW – Tape
Dolby NR SW – ON, C-Type/ OFF

(a) Connect a VTVM to TP101 (TP201) on the Main P.C.B.
(b) Set the Dolby NR switch to C-Type.
Feed in 1.4 kHz and adjust the generator output control to obtain 9 mV on the VTVM.
(c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +6.5 dB ±1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks
Output Connection: VTVM to test point TP101 (TP201) and IC104-14 (IC204-14) on Main P.C.B.
Mode: Stop
Monitor SW – Source
Dolby NR SW – ON, C-Type/ OFF

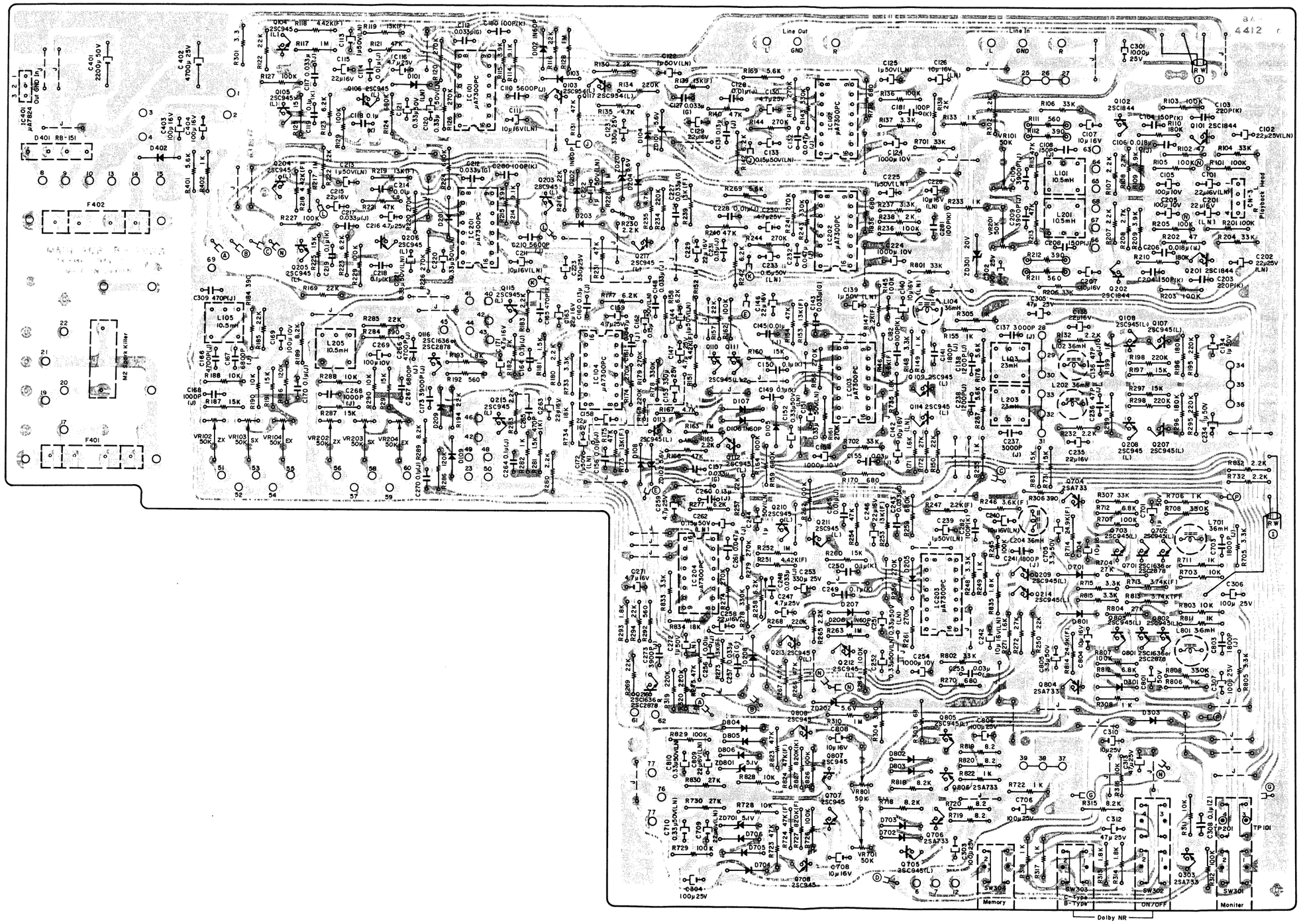
(a) Connect a VTVM to TP101 (TP201) on the Main P.C.B.
(b) Feed in 1.4 kHz and adjust the Input level controls to obtain 9 mV/2.85 mV on the VTVM.
(c) Remove the VTVM from TP101 (TP201) and re-connect it to IC104-14 (IC204-14).
(d) Check to insure that the reading at IC104-14 (IC204-14) corresponds to the following with Dolby NR switch OFF and C-Type.

Input Level at TP101 (TP201)	Level at IC104-14 (IC204-14)	
	Dolby NR OFF	Dolby NR C-Type
10 mV	0 dB	+6.5 dB ±1.5 dB
3.16 mV	0 dB	+11.4 dB ±1.5 dB

7. MOUNTING DIAGRAMS AND PARTS LIST

Note: Mounting diagram shows a dip side view of the printed circuit board.

7.1. Main P.C.B. Ass'y



Note: Diode is 1SS53 unless otherwise specified.

Fig. 7.1.1 Serial No.: A12001121 –

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	
	BA04360A	**Main P.C.B. Ass'y (U.S.A. & Canada)**	258,277			C115,129	0B01862A	Electrolytic Capacitor 22μ 16V	C103,203	0B09283A	Ceramic Capacitor 220P 50V K	701,801		
	BA04359A	**Main P.C.B. Ass'y (Japan)**	R124,159	0B09335A	Carbon Resistor 680K ERD-25T J	146,158			C104,204	0B09281A	Ceramic Capacitor 150P 50V K	L103,203	0B03563A	19 kHz
	BA04361A	**Main P.C.B. Ass'y (220V Class 2)**	224,259			215,229			C105,205	0B05885A	Electrolytic Capacitor 100μ 10V	R132,232	0B05622A	Carbon
	BA04362A	**Main P.C.B. Ass'y (UK & Australia)**	R125,160	0B01683A	Carbon Resistor 15K ERD-25T J	246,258			C106,206	0B05832A	Mylar Capacitor 0.018μ 50V J	732,832		
	BA04363A	**Main P.C.B. Ass'y (Others)**	225,260			C116,130	0B01402A	Electrolytic Capacitor 4.7μ 25V	C107,207	0B01412A	Electrolytic Capacitor 10μ 16V	R176,276	0B01887A	Carbon
		Serial No.: A12001121 –	R127,129	0B01889A	Carbon Resistor 100K ERD-25T J	147,159			C108,208	0B09246A	Mica Capacitor 150P 50V J	R195,198	0B05625A	Carbon
			136,145			216,230			C109,209	0B01804A	Mylar Capacitor 3900P 50V J	295,298		
	– Dolby NR –		162,164			247,259			C302	0B01272A	Electrolytic Capacitor 100μ 25V	R196,296	0B05640A	Carbon
			227,229			C117,148	0B05583A	Mylar Capacitor 0.033μ 50V J				R197,297	0B01683A	Carbon
IC101-104	0B06200A	IC μA7300PC (8 pcs.)	236,245			217,248				**– Rec. Amp. –**		731,831		
201-204			262,264			C118,119	0B01603A	Mylar Capacitor 0.1μ 50V K				R199,299	0B01857A	Carbon
Q103-106	0B01872A	Transistor 2SC945 (L)	312			149,150			Q115,215	0B01872A	Transistor 2SC945 (L)	305,308		
109-114		(22 pcs.)	R130,165	0B05622A	Carbon Resistor 2.2K ERD-25T J	218,219			Q116,216	0B06070A	Transistor 2SC1636	706,711		
117			230,265			249,250				(0B06299A)	(2SC2878)	722,806		
203-206			R133,149	0B01857A	Carbon Resistor 1K ERD-25T J	C120,121	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)	D109,209	0B06181A	Silicon Diode 1SS53	811,822		
209-214			155,233			151,152			L105,205	0B00068A	Trap Coil 10.5mH	R303	0B09306A	Fail Sa
217			249,255			220,221			VR102,103	0B07237A	Semi-fixed Volume 50K	R306	0B09383A	Fail Sa
Q303	0B06013A	Transistor 2SA733	317,318			251,252			104,202			R307	0B05509A	Carbon
ZD101,102	0B06268A	Zener Diode 5.6V RD5.6EB3	R134,168	0B05625A	Carbon Resistor 220K ERD-25T J	C123,153	0B05793A	Electrolytic Capacitor 330μ 25V	203,204			R703,803	0B01888A	Carbon
201,202			234,268			223,253			R169,185	0B05615A	Carbon Resistor 22K ERD-25T J	R704,804	0B05743A	Carbon
D101,103	0B01909A	Silicon Diode 1S1555	319,320			C124,154	0B05852A	Electrolytic Capacitor 1000μ 10V	194,269			R705,715	0B01681A	Carbon
104,105			R135,167	0B01846A	Carbon Resistor 4.7K ERD-25T J	224,254			285,294			805,815		
107,108			235,267			C131,160	0B09566A	Mylar Capacitor 0.13μ 50V J	R180,183	0B05622A	Carbon Resistor 2.2K ERD-25T J	R707,807	0B01889A	Carbon
201,203			R137,148	0B01681A	Carbon Resistor 3.3K ERD-25T J	231,260			280,283			R708,808	0B05627A	Carbon
204,205			237,248			C132,161	0B05796A	Mylar Capacitor 0.047μ 50V J	R181,281	0B05698A	Carbon Resistor 1.5K ERD-25T J	R712,812	0B01682A	Carbon
207,208			733,833			232,261			R182,282	0B01857A	Carbon Resistor 1K ERD-25T J	R713,813	0B09573A	Metal F
D102,106	0B00030A	Germanium Diode 1N60P	R138,238	0B09301A	Carbon Resistor 2K ERD-25T J	C133,162	0B09570A	Electrolytic Capacitor 0.15μ 50V (LN)	R184,284	0B05691A	Carbon Resistor 390 ERD-25T J	R714,814	0B09587A	Metal F
202,206			R143,178	0B05627A	Carbon Resistor 330K ERD-25T J	233,262			R186,286	0B05621A	Carbon Resistor 120K ERD-25T J	R718,818	0B01856A	Carbon
L104,204	0B03919B	Inductor 36mH	243,278			C141,241	0B09590A	PP Capacitor 1800P 100V J	R187,191	0B01683A	Carbon Resistor 15K ERD-25T J	R719,720	0B09331A	Fail Sa
R114,214	0B05694A	Carbon Resistor 9.1K ERD-25T J	R146,246	0B09568A	Metal Film Resistor 3.6K SN14K2E F	C155,255	0B09594A	Mylar Capacitor 0.03μ 50V J	287,291			819,820		
R115,215	0B05675A	Carbon Resistor 3.9K ERD-25T J	R147,247	0B09420A	Metal Film Resistor 2.2K SN14K2E F	C180,181	0B09282A	Ceramic Capacitor 100P 50V K	R188,190	0B01888A	Carbon Resistor 10K ERD-25T J	C134,234	0B01405A	Electro
R116,122	0B05615A	Carbon Resistor 22K ERD-25T J	R169,269	0B01887A	Carbon Resistor 5.6K ERD-25T J	182,280			288,290			701,801		
150,157			R170,270	0B05794A	Carbon Resistor 680 ERD-25T J	281,282			R189,289	0B01856A	Carbon Resistor 8.2K ERD-25T J	C135,235	0B01862A	Electro
216,222			736,836			C308	0B09292A	Ceramic Capacitor 0.1μ 50V Z	R192,292	0B05575A	Carbon Resistor 560 ERD-25T J	C136,236	0B09242A	Mica Ca
250,257			R171,271	0B09565A	Carbon Resistor 1.6K ERD-25T J	C310	0B01674A	Electrolytic Capacitor 10μ 25V	R193,293	0B05614A	Carbon Resistor 1.8K ERD-25T J	C137,237	0B09262A	PP Cap
R117,128	0B05776A	Carbon Resistor 1M ERD-25T J	R172,272	0B05743A	Carbon Resistor 27K ERD-25T J	C312,313	0B01409A	Electrolytic Capacitor 47μ 25V	C163,263	0B01862A	Electrolytic Capacitor 22μ 16V	C138,238	0B05687A	Mylar C
152,163			R311,316	0B01888A	Carbon Resistor 10K ERD-25T J		0B08714A	IC Socket 16P (8 pcs.)	C164,170	0B01780A	Mylar Capacitor 0.1μ 50V J	C303,306	0B01272A	Electro
217,228			R313,314	0B05614A	Carbon Resistor 1.8K ERD-25T J				264,270			307,706		
252,263			735,835				**– PB Eq. Amp. –**		C165,265	0B09286A	Ceramic Capacitor 470P 50V K	806		
310			R315	0B01856A	Carbon Resistor 8.2K ERD-25T J				C166,266	0B05652A	Mylar Capacitor 4700P 50V J	C305	0B01409A	Electro
R118,151	0B09558A	Metal Film Resistor 4.42K SN14K2E F	R701,702	0B05509A	Carbon Resistor 33K ERD-25T J	Q101,102	0B06119A	Transistor 2SC1844 (P)	C167,267	0B05530A	Mylar Capacitor 6800P 50V J	C703,803	0B09590A	PP Cap
218,251			801,802			201,202			C168,268	0B05550A	Mylar Capacitor 1000P 50V J	C704,804	0B01412A	Electro
R119,139	0B09557A	Metal Film Resistor 13K SN14K2E F	R734,834	0B05560A	Carbon Resistor 18K ERD-25T J	ZD301	0B06239A	Zener Diode 20V RD20EBB2	C169,269	0B05885A	Electrolytic Capacitor 100μ 10V	C705,805	0B01863A	Electro
153,173			C110,210	0B05659A	Mylar Capacitor 5600P 50V J	L101,201	0B00068A	Trap Coil 10.5mH	C171,271	0B01389A	Electrolytic Capacitor 4.7μ 16V			
219,239			C111,126	0B09148A	Electrolytic Capacitor 10μ 16V (LN)	VR101,201	0B07237A	Semi-fixed Volume 50K	C173,273	0B01804A	Mylar Capacitor 3900P 50V J		**– Meter Amp. –**	
253,273			140,142			R101,103	0B01889A	Carbon Resistor 100K ERD-25T J						
R120,126	0B05620A	Carbon Resistor 270K ERD-25T J	211,226			201,203				**– Line Amp. –**		Q707,708	0B06100A	Transis
141,144			240,242			R102,202	0B01706A	Carbon Resistor 47 ERD-25T J				807,808		
156,161			C112,127	0B09240A	PP Capacitor 0.033μ 100V G	R104,106	0B05509A	Carbon Resistor 33K ERD-25T J	Q107,108	0B01872A	Transistor 2SC945 (L)	ZD701,801	0B06058A	Zener D
174,179			143,157			204,206			207,208			D704,705	0B06181A	Silicon
220,226			212,227			R105,205	0B09330A	Carbon Resistor 100K ERD-25TS J	702,703			706,804		
241,244			243,257					(Noiseless)	705,802			805,806		
256,261			C113,122	0B09223A	Electrolytic Capacitor 1μ 50V (LN)	R107,207	0B05622A	Carbon Resistor 2.2K ERD-25T J	803,805			VR701,801	0B07237A	Semi-fi
274,279			125,139			302			Q701,801	0B06070A	Transistor 2SC1636	R304	0B09383A	Fail Sa
R121,131	0B05641A	Carbon Resistor 47K ERD-25T J	144,172			R108,208	0B05629A	Carbon Resistor 2.7K ERD-25T J		(0B06299A)	(2SC2878)	R723,823	0B05641A	Carbon
140,154			213,222			R109,209	0B05675A	Carbon Resistor 3.9K ERD-25T J	Q704,706	0B06013A	Transistor 2SA733	R724,824	0B09451A	Metal F
166,175			225,239			R110,210	0B05640A	Carbon Resistor 180K ERD-25T J	804,806			R726,729	0B01889A	Carbon
221,231			244,272			R111,211	0B05575A	Carbon Resistor 560 ERD-25T J	D301,303	0B06181A	Silicon Diode 1SS53	826,829		
240,254			C114,128	0B09591A	PP Capacitor 0.01μ 100V J	R112,212	0B05691A	Carbon Resistor 390 ERD-25T J	701,702			R727,827	0B09197A	Metal F
266,275			145,156			R113,213	0B05641A	Carbon Resistor 47K ERD-25T J	703,801			R728,828	0B01888A	Carbon
R123,142	0B09271A	Carbon Resistor 6.2K ERD-25T J	214,228			C101,201	0B09137A	Electrolytic Capacitor 22μ 16V (LN)	802,803			R730,830	0B05743A	Carbon
158,177			245,256			C102,202	0B09376A	Electrolytic Capacitor 22μ 25V (LN)	L102,202	0B03919B	Inductor 36mH	C304	0B01272A	Electro
223,242														

Description	Schematic Ref. No.	Part No.	Description
esistor 680K ERD-25T J	C115,129	0B01862A	Electrolytic Capacitor 22μ 16V
	146,158		
	215,229		
esistor 15K ERD-25T J	246,258		
	C116,130	0B01402A	Electrolytic Capacitor 4.7μ 25V
esistor 100K ERD-25T J	147,159		
	216,230		
	247,259		
	C117,148	0B05583A	Mylar Capacitor 0.033μ 50V J
	217,248		
	C118,119	0B01603A	Mylar Capacitor 0.1μ 50V K
	149,150		
esistor 2.2K ERD-25T J	218,219		
	249,250		
esistor 1K ERD-25T J	C120,121	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)
	151,152		
	220,221		
	251,252		
esistor 220K ERD-25T J	C123,153	0B05793A	Electrolytic Capacitor 330μ 25V
	223,253		
	C124,154	0B05852A	Electrolytic Capacitor 1000μ 10V
esistor 4.7K ERD-25T J	224,254		
	C131,160	0B09566A	Mylar Capacitor 0.13μ 50V J
esistor 3.3K ERD-25T J	231,260		
	C132,161	0B05796A	Mylar Capacitor 0.047μ 50V J
	232,261		
esistor 2K ERD-25T J	C133,162	0B09570A	Electrolytic Capacitor 0.15μ 50V (LN)
esistor 330K ERD-25T J	233,262		
	C141,241	0B09590A	PP Capacitor 1800P 100V J
n Resistor 3.6K SN14K2E F	C155,255	0B09594A	Mylar Capacitor 0.03μ 50V J
n Resistor 2.2K SN14K2E F	C180,181	0B09282A	Ceramic Capacitor 100P 50V K
esistor 5.6K ERD-25T J	182,280		
esistor 680 ERD-25T J	281,282		
	C308	0B09292A	Ceramic Capacitor 0.1μ 50V Z
esistor 1.6K ERD-25T J	C310	0B01674A	Electrolytic Capacitor 10μ 25V
esistor 27K ERD-25T J	C312,313	0B01409A	Electrolytic Capacitor 47μ 25V
esistor 10K ERD-25T J		0B08714A	IC Socket 16P (8 pcs.)
esistor 1.8K ERD-25T J			
			— PB Eq. Amp. —
esistor 8.2K ERD-25T J			
esistor 33K ERD-25T J	Q101,102	0B06119A	Transistor 2SC1844 (P)
	201,202		
esistor 18K ERD-25T J	ZD301	0B06239A	Zener Diode 20V RD20EBB2
pacitor 5600P 50V J	L101,201	0B00068A	Trap Coil 10.5mH
tic Capacitor 10μ 16V (LN)	VR101,201	0B07237A	Semi-fixed Volume 50K
	R101,103	0B01889A	Carbon Resistor 100K ERD-25T J
	201,203		
	R102,202	0B01706A	Carbon Resistor 47 ERD-25T J
itor 0.033μ 100V G	R104,106	0B05509A	Carbon Resistor 33K ERD-25T J
	204,206		
	R105,205	0B09330A	Carbon Resistor 100K ERD-25TS J (Noiseless)
tic Capacitor 1μ 50V (LN)	R107,207	0B05622A	Carbon Resistor 2.2K ERD-25T J
	302		
	R108,208	0B05629A	Carbon Resistor 2.7K ERD-25T J
	R109,209	0B05675A	Carbon Resistor 3.9K ERD-25T J
	R110,210	0B05640A	Carbon Resistor 180K ERD-25T J
	R111,211	0B05575A	Carbon Resistor 560 ERD-25T J
itor 0.01μ 100V J	R112,212	0B05691A	Carbon Resistor 390 ERD-25T J
	R113,213	0B05641A	Carbon Resistor 47K ERD-25T J
	C101,201	0B09137A	Electrolytic Capacitor 22μ 16V (LN)
	C102,202	0B09376A	Electrolytic Capacitor 22μ 25V (LN)
	C103,203	0B09283A	Ceramic Capacitor 220P 50V K
	C104,204	0B09281A	Ceramic Capacitor 150P 50V K
	C105,205	0B05885A	Electrolytic Capacitor 100μ 10V
	C106,206	0B05832A	Mylar Capacitor 0.018μ 50V J
	C107,207	0B01412A	Electrolytic Capacitor 10μ 16V
	C108,208	0B09246A	Mica Capacitor 150P 50V J
	C109,209	0B01804A	Mylar Capacitor 3900P 50V J
	C302	0B01272A	Electrolytic Capacitor 100μ 25V
			— Rec. Amp. —
	Q115,215	0B01872A	Transistor 2SC945 (L)
	Q116,216	0B06070A	Transistor 2SC1636
		(0B06299A)	(2SC2878)
	D109,209	0B06181A	Silicon Diode 1SS53
	L105,205	0B00068A	Trap Coil 10.5mH
	VR102,103	0B07237A	Semi-fixed Volume 50K
	104,202		
	203,204		
	R169,185	0B05615A	Carbon Resistor 22K ERD-25T J
	194,269		
	285,294		
	R180,183	0B05622A	Carbon Resistor 2.2K ERD-25T J
	280,283		
	R181,281	0B05698A	Carbon Resistor 1.5K ERD-25T J
	R182,282	0B01857A	Carbon Resistor 1K ERD-25T J
	R184,284	0B05691A	Carbon Resistor 390 ERD-25T J
	R186,286	0B05621A	Carbon Resistor 120K ERD-25T J
	R187,191	0B01683A	Carbon Resistor 15K ERD-25T J
	287,291		
	R188,190	0B01888A	Carbon Resistor 10K ERD-25T J
	288,290		
	R189,289	0B01856A	Carbon Resistor 8.2K ERD-25T J
	R192,292	0B05575A	Carbon Resistor 560 ERD-25T J
	R193,293	0B05614A	Carbon Resistor 1.8K ERD-25T J
	C163,263	0B01862A	Electrolytic Capacitor 22μ 16V
	C164,170	0B01780A	Mylar Capacitor 0.1μ 50V J
	264,270		
	C165,265	0B09286A	Ceramic Capacitor 470P 50V K
	C166,266	0B05652A	Mylar Capacitor 4700P 50V J
	C167,267	0B05530A	Mylar Capacitor 6800P 50V J
	C168,268	0B05550A	Mylar Capacitor 1000P 50V J
	C169,269	0B05885A	Electrolytic Capacitor 100μ 10V
	C171,271	0B01389A	Electrolytic Capacitor 4.7μ 16V
	C173,273	0B01804A	Mylar Capacitor 3900P 50V J
			— Line Amp. —
	Q107,108	0B01872A	Transistor 2SC945 (L)
	207,208		
	702,703		
	705,802		
	803,805		
	Q701,801	0B06070A	Transistor 2SC1636
		(0B06299A)	(2SC2878)
	Q704,706	0B06013A	Transistor 2SA733
	804,806		
	D301,303	0B06181A	Silicon Diode 1SS53
	701,702		
	703,801		
	802,803		
	L102,202	0B03919B	Inductor 36mH
	701,801		
	L103,203	0B03563A	19 kHz Coil 23mH
	R132,232	0B05622A	Carbon Resistor 2.2K ERD-25T J
	732,832		
	R176,276	0B01887A	Carbon Resistor 5.6K ERD-25T J
	R195,198	0B05625A	Carbon Resistor 220K ERD-25T J
	295,298		
	R196,296	0B05640A	Carbon Resistor 180K ERD-25T J
	R197,297	0B01683A	Carbon Resistor 15K ERD-25T J
	731,831		
	R199,299	0B01857A	Carbon Resistor 1K ERD-25T J
	305,308		
	706,711		
	722,806		
	811,822		
	R303	0B09306A	Fail Safe Type Resistor 68 RDF-25S J
	R306	0B09383A	Fail Safe Type Resistor 390 RDF-25S J
	R307	0B05509A	Carbon Resistor 33K ERD-25T J
	R703,803	0B01888A	Carbon Resistor 10K ERD-25T J
	R704,804	0B05743A	Carbon Resistor 27K ERD-25T J
	R705,715	0B01681A	Carbon Resistor 3.3K ERD-25T J
	805,815		
	R707,807	0B01889A	Carbon Resistor 100K ERD-25T J
	R708,808	0B05627A	Carbon Resistor 330K ERD-25T J
	R712,812	0B01682A	Carbon Resistor 6.8K ERD-25T J
	R713,813	0B09573A	Metal Film Resistor 3.74K SN14K2E F
	R714,814	0B09587A	Metal Film Resistor 24.9K SN14K2E F
	R718,818	0B01856A	Carbon Resistor 8.2K ERD-25T J
	R719,720	0B09331A	Fail Safe Type Resistor 8.2RDF-25S J
	819,820		
	C134,234	0B01405A	Electrolytic Capacitor 1μ 50V
	701,801		
	C135,235	0B01862A	Electrolytic Capacitor 22μ 16V
	C136,236	0B09242A	Mica Capacitor 47P 50V J
	C137,237	0B09262A	PP Capacitor 3000P 100V J
	C138,238	0B05687A	Mylar Capacitor 1200P 50V J
	C303,306	0B01272A	Electrolytic Capacitor 100μ 25V
	307,706		
	806		
	C305	0B01409A	Electrolytic Capacitor 47μ 25V
	C703,803	0B09590A	PP Capacitor 1800P 100V J
	C704,804	0B01412A	Electrolytic Capacitor 10μ 16V
	C705,805	0B01863A	Electrolytic Capacitor 3.3μ 50V
			— Meter Amp. —
	Q707,708	0B06100A	Transistor 2SC945 (A)
	807,808		
	ZD701,801	0B06058A	Zener Diode 5.1V YZ051
	D704,705	0B06181A	Silicon Diode 1SS53
	706,804		
	805,806		
	VR701,801	0B07237A	Semi-fixed Volume 50K
	R304	0B09383A	Fail Safe Type Resistor 390 RDF-25S J
	R723,823	0B05641A	Carbon Resistor 47K ERD-25T J
	R724,824	0B09451A	Metal Film Resistor 47K SN14K2E F
	R726,729	0B01889A	Carbon Resistor 100K ERD-25T J
	826,829		
	R727,827	0B09197A	Metal Film Resistor 820K SN14K2E F
	R728,828	0B01888A	Carbon Resistor 10K ERD-25T J
	R730,830	0B05743A	Carbon Resistor 27K ERD-25T J
	C304	0B01272A	Electrolytic Capacitor 100μ 25V
	C708,808	0B01412A	Electrolytic Capacitor 10μ 16V
	C709,809	0B09137A	Electrolytic Capacitor 22μ 16V (LN)
	C710,810	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)
			— Power Supply —
	IC401	0B06237A	Regulator IC μA7824
	D401	0B06183A	Diode Bridge RB151
	D402	0B06181A	Silicon Diode 1SS53
	R301	0B09339A	Fail Safe Type Resistor 3.3RDF-25S J
	R401	0B01887A	Carbon Resistor 5.6K ERD-25T J
	R402	0B01857A	Carbon Resistor 1K ERD-25T J
	C301	0B01870A	Electrolytic Capacitor 1000μ 25V
	C309	0B09286A	Ceramic Capacitor 470P 50V K
	C401	0B09336A	Electrolytic Capacitor 2200μ 50V
	C402	0B09250A	Electrolytic Capacitor 4700μ 25V
	C403,404	0B01400A	Electrolytic Capacitor 100μ 16V
			— Miscellaneous —
		0B07963C	Main P.C.B.
	F401,402	0B08374A	Fuse 1A 250V (U.S.A., Canada & Others)
	F401,402	0B08686A	Fuse 1A 250V (Japan)
	F401	0B08275A	Fuse T125mA 250V (220V Class 2, UK & Australia)
	F402	0B08457A	Fuse T500mA 250V (220V Class 2, UK & Australia)
	M2	0B08342A	Spark Killer (U.S.A. & Canada)
	M2	0B08363A	Spark Killer (Japan)
	M2,3	0B08445A	Spark Killer (220V Class 2)
	M2	0B08240U	Spark Killer (UK, Australia & Others)
	CN3	0B08654A	4P-T Post
		0B07315A	Push Switch (1 pce.)
		0B08675A	Pin Jack (1 pce.)
		0B08676A	Heat Sink (1 pce.)
		0M03782A	Fuse Label 1Ax250V (1 pce.) (U.S.A., Canada, Japan & Others)
		0M04082B	Fuse Label T125mA 250V (1 pce.) (220V Class 2, UK & Australia)
		0M04096B	Fuse Label T500mA 250V (1 pce.) (220V Class 2, UK & Australia)
		0B08349A	Fuse Clip (4 pcs.) (220V Class 2, UK & Australia)
		0E00857A	BT Screw M3x6 Philips Binding Head (2 pcs.)
		0E00612A	Screw M3x6 Philips Pan Head (2A) (1 pce.)
		0E00507A	Nut Hex. M3 (1 pce.)

Schematic Ref. No.	Part No.	Description
	BA04360A	**Main P.C.B. Ass'y (U.S.A. & Canada)**
	BA04359A	**Main P.C.B. Ass'y (Japan)**
	BA04361A	**Main P.C.B. Ass'y (220V Class 2)**
	BA04362A	**Main P.C.B. Ass'y (UK & Australia)**
	BA04363A	**Main P.C.B. Ass'y (Others)**
		Serial Nos.: A12001001 – A12001120
	– Dolby NR –	
IC101-104	0B06200A	IC μA7300PC (8 pcs.)
201-204		
Q103-106	0B01872A	Transistor 2SC945 (L)
109-114		(22 pcs.)
117		
203-206		
209-214		
217		
Q303	0B06013A	Transistor 2SA733
ZD101,102	0B06268A	Zener Diode 5.6V RD5.6EB3
201,202		
D101,103	0B01909A	Silicon Diode 1S1555
104,105		
107,108		
201,203		
204,205		
207,208		
D102,106	0B00030A	Germanium Diode 1N60P
202,206		
L104,204	0B03919B	Inductor 36mH
R114,214	0B05694A	Carbon Resistor 9.1K ERD-25T J
R115,215	0B05675A	Carbon Resistor 3.9K ERD-25T J
R116,122	0B05615A	Carbon Resistor 22K ERD-25T J
150,157		
216,222		
250,257		
R117,128	0B05776A	Carbon Resistor 1M ERD-25T J
152,163		
217,228		
252,263		
310		
R118,151	0B09558A	Metal Film Resistor 4.42K SN14K2E F
218,251		
R119,139	0B09557A	Metal Film Resistor 13K SN14K2E F
153,173		
219,239		
253,273		
R120,126	0B05620A	Carbon Resistor 270K ERD-25T J
141,144		
156,161		
174,179		
220,226		
241,244		
256,261		
274,279		
R121,131	0B05641A	Carbon Resistor 47K ERD-25T J
140,154		
166,175		
221,231		
240,254		
266,275		
R123,142	0B09271A	Carbon Resistor 6.2K ERD-25T J
158,177		
223,242		

Schematic Ref. No.	Part No.	Description
258,277		
R124,159	0B09335A	Carbon Resistor 680K ERD-25T J
224,259		
R125,160	0B01683A	Carbon Resistor 15K ERD-25T J
225,260		
R127,129	0B01889A	Carbon Resistor 100K ERD-25T J
136,145		
162,164		
227,229		
236,245		
262,264		
312		
R130,165	0B05622A	Carbon Resistor 2.2K ERD-25T J
230,265		
R133,149	0B01857A	Carbon Resistor 1K ERD-25T J
155,233		
249,255		
317,318		
R134,168	0B05625A	Carbon Resistor 220K ERD-25T J
234,268		
319,320		
R135,167	0B01846A	Carbon Resistor 4.7K ERD-25T J
235,267		
R137,146	0B01681A	Carbon Resistor 3.3K ERD-25T J
148,237		
246,248		
733,833		
R138,147	0B09301A	Carbon Resistor 2K ERD-25T J
238,247		
R143,178	0B05627A	Carbon Resistor 330K ERD-25T J
243,278		
R170,270	0B05794A	Carbon Resistor 680 ERD-25T J
R171,271	0B09565A	Carbon Resistor 1.6K ERD-25T J
R172,272	0B05743A	Carbon Resistor 27K ERD-25T J
R311,316	0B01888A	Carbon Resistor 10K ERD-25T J
R313,314	0B05614A	Carbon Resistor 1.8K ERD-25T J
R315	0B01856A	Carbon Resistor 8.2K ERD-25T J
R701,702	0B05509A	Carbon Resistor 33K ERD-25T J
734,801		
802,834		
C110,210	0B05659A	Mylar Capacitor 5600P 50V J
C111,126	0B09148A	Electrolytic Capacitor 10μ 16V (LN)
140,142		
211,226		
240,242		
C112,127	0B09240A	PP Capacitor 0.033μ 100V G
143,157		
212,227		
243,257		
C113,125	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
139,144		
172,213		
225,239		
244,272		
C114,128	0B09591A	PP Capacitor 0.01μ 100V J
145,156		
214,228		
245,256		
C115,129	0B01862A	Electrolytic Capacitor 22μ 16V
146,158		
215,229		
246,258		

Schematic Ref. No.	Part No.	Description
C116,130	0B01402A	Electrolytic Capacitor 4.7μ 25V
147,159		
216,230		
247,259		
C117,148	0B05583A	Mylar Capacitor 0.033μ 50V J
217,248		
C118,119	0B01603A	Mylar Capacitor 0.1μ 50V K
149,150		
218,219		
249,250		
C120,121	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)
151,152		
220,221		
251,252		
C123,153	0B01272A	Electrolytic Capacitor 100μ 25V
223,253		
C124,154	0B05852A	Electrolytic Capacitor 1000μ 10V
224,254		
C131,160	0B09566A	Mylar Capacitor 0.13μ 50V J
231,260		
C132,161	0B05796A	Mylar Capacitor 0.047μ 50V J
232,261		
C133,162	0B09570A	Electrolytic Capacitor 0.15μ 50V (LN)
233,262		
C141,241	0B09590A	PP Capacitor 1800P 100V J
C155,255	0B09045A	Mylar Capacitor 0.027μ 50V J
C180,181	0B09282A	Ceramic Capacitor 100P 50V K
182,280		
281,282		
C308	0B09292A	Ceramic Capacitor 0.1μ 50V Z
C310	0B01674A	Electrolytic Capacitor 10μ 25V
C312,313	0B01409A	Electrolytic Capacitor 47μ 25V
	0B08714A	IC Socket 16P (8 pcs.)
	– PB Eq. Amp. –	
Q101,102	0B06119A	Transistor 2SC1844 (P)
201,202		
ZD301	0B06239A	Zener Diode 20V RD20EBB2
L101,201	0B00068A	Trap Coil 10.5mH
VR101,201	0B07237A	Semi-fixed Volume 50K
R101,103	0B01889A	Carbon Resistor 100K ERD-25T J
201,203		
R102,202	0B01706A	Carbon Resistor 47 ERD-25T J
R104,106	0B05509A	Carbon Resistor 33K ERD-25T J
204,206		
R105,205	0B09330A	Carbon Resistor 100K ERD-25TS J (Noiseless)
R107,207	0B05622A	Carbon Resistor 2.2K ERD-25T J
302		
R108,208	0B05629A	Carbon Resistor 2.7K ERD-25T J
R109,209	0B05675A	Carbon Resistor 3.9K ERD-25T J
R110,210	0B05640A	Carbon Resistor 180K ERD-25T J
R111,211	0B05575A	Carbon Resistor 560 ERD-25T J
R112,212	0B05691A	Carbon Resistor 390 ERD-25T J
R113,213	0B05641A	Carbon Resistor 47K ERD-25T J
C101,201	0B09137A	Electrolytic Capacitor 22μ 16V (LN)
C102,202	0B09376A	Electrolytic Capacitor 22μ 25V (LN)
C103,203	0B09283A	Ceramic Capacitor 220P 50V K
C104,204	0B09281A	Ceramic Capacitor 150P 50V K
C105,205	0B05885A	Electrolytic Capacitor 100μ 10V
C106,206	0B05832A	Mylar Capacitor 0.018μ 50V J

Schematic Ref. No.	Part No.	Description
C107,207	0B01412A	Electrolytic Capacitor 10μ 16V
C108,208	0B09246A	Mica Capacitor 150P 50V J
C109,209	0B01804A	Mylar Capacitor 3900P 50V J
C302	0B01272A	Electrolytic Capacitor 100μ 25V
	– Rec. Amp. –	
Q115,215	0B01872A	Transistor 2SC945 (L)
Q116,216	0B06070A	Transistor 2SC1636
	(0B06299A)	(2SC2878)
D109,209	0B06181A	Silicon Diode 1SS53
L105,205	0B00068A	Trap Coil 10.5mH
VR102,103	0B07237A	Semi-fixed Volume 50K
104,202		
203,204		
R169,185	0B05615A	Carbon Resistor 22K ERD-25T J
194,269		
285,294		
R180,183	0B05622A	Carbon Resistor 2.2K ERD-25T J
280,283		
R181,281	0B05698A	Carbon Resistor 1.5K ERD-25T J
R182,282	0B01857A	Carbon Resistor 1K ERD-25T J
R184,284	0B05691A	Carbon Resistor 390 ERD-25T J
R186,286	0B05621A	Carbon Resistor 120K ERD-25T J
R187,191	0B01683A	Carbon Resistor 15K ERD-25T J
287,291		
R188,190	0B01888A	Carbon Resistor 10K ERD-25T J
288,290		
R189,289	0B01856A	Carbon Resistor 8.2K ERD-25T J
R192,292	0B05575A	Carbon Resistor 560 ERD-25T J
R193,293	0B05614A	Carbon Resistor 1.8K ERD-25T J
C163,263	0B01862A	Electrolytic Capacitor 22μ 16V
C164,170	0B01780A	Mylar Capacitor 0.1μ 50V J
264,270		
C165,265	0B09279A	Ceramic Capacitor 22P 50V J
C166,266	0B05652A	Mylar Capacitor 4700P 50V J
C167,267	0B05530A	Mylar Capacitor 6800P 50V J
C168,268	0B05550A	Mylar Capacitor 1000P 50V J
C169,269	0B05885A	Electrolytic Capacitor 100μ 10V
C171,271	0B01389A	Electrolytic Capacitor 4.7μ 16V
C173,273	0B01804A	Mylar Capacitor 3900P 50V J
	– Line Amp. –	
Q107,108	0B01872A	Transistor 2SC945 (L)
207,208		
702,703		
705,802		
803,805		
Q701,801	0B06070A	Transistor 2SC1636
	(0B06299A)	(2SC2878)
Q704,706	0B06013A	Transistor 2SA733
804,806		
D301,701	0B06181A	Silicon Diode 1SS53
702,703		
801,802		
803		
L102,202	0B03919B	Inductor 36mH
701,801		
L103,203	0B03563A	19 kHz Coil 23mH
R132,232	0B05622A	Carbon Resistor 2.2K ERD-25T J
732,832		

Schematic Ref. No.	Part No.	D
R176,276	0B01682A	Carbon Res
R195,198	0B05625A	Carbon Res
295,298		
R196,296	0B05640A	Carbon Res
R197,297	0B01683A	Carbon Res
731,831		
R199,299	0B01857A	Carbon Res
305,308		
706,711		
722,806		
811,822		
R303	0B09306A	Fail Safe Ty
R306	0B09383A	Fail Safe Ty
R307	0B05509A	Carbon Res
R703,803	0B01888A	Carbon Res
R704,804	0B05743A	Carbon Res
R705,715	0B01681A	Carbon Res
805,815		
R707,807	0B01889A	Carbon Res
R708,737	0B05627A	Carbon Res
808,837		
R712,812	0B01682A	Carbon Res
R713,813	0B09573A	Metal Film
R714,814	0B09587A	Metal Film
R718,818	0B01856A	Carbon Res
R719,720	0B09331A	Fail Safe Ty
819,820		
C134,234	0B01405A	Electrolytic
C135,235	0B01862A	Electrolytic
C136,236	0B09242A	Mica Capac
C137,237	0B09262A	PP Capacito
C138,238	0B01913A	Mylar Capa
C303,305	0B01272A	Electrolytic
306,307		
706,806		
C701,801	0B09221A	Electrolytic
C703,803	0B09409A	PP Capacito
C704,804	0B01412A	Electrolytic
C705,805	0B01863A	Electrolytic
	– Meter Amp. –	
Q707,708	0B06100A	Transistor
807,808		
ZD701,801	0B06058A	Zener Diod
D704,705	0B06181A	Silicon Dio
706,804		
805,806		
VR701,801	0B07237A	Semi-fixed
R304	0B09383A	Fail Safe Ty
R723,823	0B05641A	Carbon Res
R724,824	0B09451A	Metal Film
R726,729	0B01889A	Carbon Res
826,829		
R727,827	0B09197A	Metal Film
R728,828	0B01888A	Carbon Res
R730,830	0B05743A	Carbon Res
C304	0B01272A	Electrolytic
C708,808	0B01412A	Electrolytic
C709,809	0B09137A	Electrolytic
C710,810	0B09385A	Electrolytic

Description	Schematic Ref. No.	Part No.	Description
ı Resistor 680K ERD-25T J	C116,130	0B01402A	Electrolytic Capacitor 4.7μ 25V
	147,159		
	216,230		
ı Resistor 15K ERD-25T J	247,259		
	C117,148	0B05583A	Mylar Capacitor 0.033μ 50V J
ı Resistor 100K ERD-25T J	217,248		
	C118,119	0B01603A	Mylar Capacitor 0.1μ 50V K
	149,150		
	218,219		
	249,250		
	C120,121	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)
	151,152		
ı Resistor 2.2K ERD-25T J	220,221		
	251,252		
ı Resistor 1K ERD-25T J	C123,153	0B01272A	Electrolytic Capacitor 100μ 25V
	223,253		
	C124,154	0B05852A	Electrolytic Capacitor 1000μ 10V
	224,254		
ı Resistor 220K ERD-25T J	C131,160	0B09566A	Mylar Capacitor 0.13μ 50V J
	231,260		
	C132,161	0B05796A	Mylar Capacitor 0.047μ 50V J
ı Resistor 4.7K ERD-25T J	232,261		
	C133,162	0B09570A	Electrolytic Capacitor 0.15μ 50V (LN)
ı Resistor 3.3K ERD-25T J	233,262		
	C141,241	0B09590A	PP Capacitor 1800P 100V J
	C155,255	0B09045A	Mylar Capacitor 0.027μ 50V J
	C180,181	0B09282A	Ceramic Capacitor 100P 50V K
ı Resistor 2K ERD-25T J	182,280		
	281,282		
ı Resistor 330K ERD-25T J	C308	0B09292A	Ceramic Capacitor 0.1μ 50V Z
	C310	0B01674A	Electrolytic Capacitor 10μ 25V
ı Resistor 680 ERD-25T J	C312,313	0B01409A	Electrolytic Capacitor 47μ 25V
ı Resistor 1.6K ERD-25T J		0B08714A	IC Socket 16P (8 pcs.)
ı Resistor 27K ERD-25T J			
ı Resistor 10K ERD-25T J		**— PB Eq. Amp. —**	
ı Resistor 1.8K ERD-25T J			
ı Resistor 8.2K ERD-25T J	Q101,102	0B06119A	Transistor 2SC1844 (P)
ı Resistor 33K ERD-25T J	201,202		
	ZD301	0B06239A	Zener Diode 20V RD20EBB2
	L101,201	0B00068A	Trap Coil 10.5mH
Capacitor 5600P 50V J	VR101,201	0B07237A	Semi-fixed Volume 50K
olytic Capacitor 10μ 16V (LN)	R101,103	0B01889A	Carbon Resistor 100K ERD-25T J
	201,203		
	R102,202	0B01706A	Carbon Resistor 47 ERD-25T J
	R104,106	0B05509A	Carbon Resistor 33K ERD-25T J
pacitor 0.033μ 100V G	204,206		
	R105,205	0B09330A	Carbon Resistor 100K ERD-25TS J (Noiseless)
	R107,207	0B05622A	Carbon Resistor 2.2K ERD-25T J
olytic Capacitor 1μ 50V (LN)	302		
	R108,208	0B05629A	Carbon Resistor 2.7K ERD-25T J
	R109,209	0B05675A	Carbon Resistor 3.9K ERD-25T J
	R110,210	0B05640A	Carbon Resistor 180K ERD-25T J
	R111,211	0B05575A	Carbon Resistor 560 ERD-25T J
pacitor 0.01μ 100V J	R112,212	0B05691A	Carbon Resistor 390 ERD-25T J
	R113,213	0B05641A	Carbon Resistor 47K ERD-25T J
	C101,201	0B09137A	Electrolytic Capacitor 22μ 16V (LN)
	C102,202	0B09376A	Electrolytic Capacitor 22μ 25V (LN)
olytic Capacitor 22μ 16V	C103,203	0B09283A	Ceramic Capacitor 220P 50V K
	C104,204	0B09281A	Ceramic Capacitor 150P 50V K
	C105,205	0B05885A	Electrolytic Capacitor 100μ 10V
	C106,206	0B05832A	Mylar Capacitor 0.018μ 50V J

Description	Schematic Ref. No.	Part No.	Description
	C107,207	0B01412A	Electrolytic Capacitor 10μ 16V
	C108,208	0B09246A	Mica Capacitor 150P 50V J
	C109,209	0B01804A	Mylar Capacitor 3900P 50V J
	C302	0B01272A	Electrolytic Capacitor 100μ 25V
		— Rec. Amp. —	
	Q115,215	0B01872A	Transistor 2SC945 (L)
	Q116,216	0B06070A	Transistor 2SC1636
		(0B06299A)	(2SC2878)
	D109,209	0B06181A	Silicon Diode 1SS53
	L105,205	0B00068A	Trap Coil 10.5mH
	VR102,103	0B07237A	Semi-fixed Volume 50K
	104,202		
	203,204		
	R169,185	0B05615A	Carbon Resistor 22K ERD-25T J
	194,269		
	285,294		
	R180,183	0B05622A	Carbon Resistor 2.2K ERD-25T J
	280,283		
	R181,281	0B05698A	Carbon Resistor 1.5K ERD-25T J
	R182,282	0B01857A	Carbon Resistor 1K ERD-25T J
	R184,284	0B05691A	Carbon Resistor 390 ERD-25T J
	R186,286	0B05621A	Carbon Resistor 120K ERD-25T J
	R187,191	0B01683A	Carbon Resistor 15K ERD-25T J
	287,291		
	R188,190	0B01888A	Carbon Resistor 10K ERD-25T J
	288,290		
	R189,289	0B01856A	Carbon Resistor 8.2K ERD-25T J
	R192,292	0B05575A	Carbon Resistor 560 ERD-25T J
	R193,293	0B05614A	Carbon Resistor 1.8K ERD-25T J
	C163,263	0B01862A	Electrolytic Capacitor 22μ 16V
	C164,170	0B01780A	Mylar Capacitor 0.1μ 50V J
	264,270		
	C165,265	0B09279A	Ceramic Capacitor 22P 50V J
	C166,266	0B05652A	Mylar Capacitor 4700P 50V J
	C167,267	0B05530A	Mylar Capacitor 6800P 50V J
	C168,268	0B05550A	Mylar Capacitor 1000P 50V J
	C169,269	0B05885A	Electrolytic Capacitor 100μ 10V
	C171,271	0B01389A	Electrolytic Capacitor 4.7μ 16V
	C173,273	0B01804A	Mylar Capacitor 3900P 50V J
		— Line Amp. —	
	Q107,108	0B01872A	Transistor 2SC945 (L)
	207,208		
	702,703		
	705,802		
	803,805		
	Q701,801	0B06070A	Transistor 2SC1636
		(0B06299A)	(2SC2878)
	Q704,706	0B06013A	Transistor 2SA733
	804,806		
	D301,701	0B06181A	Silicon Diode 1SS53
	702,703		
	801,802		
	803		
	L102,202	0B03919B	Inductor 36mH
	701,801		
	L103,203	0B03563A	19 kHz Coil 23mH
	R132,232	0B05622A	Carbon Resistor 2.2K ERD-25T J
	732,832		

Description	Schematic Ref. No.	Part No.	Description
	R176,276	0B01682A	Carbon Resistor 6.8K ERD-25T J
	R195,198	0B05625A	Carbon Resistor 220K ERD-25T J
	295,298		
	R196,296	0B05640A	Carbon Resistor 180K ERD-25T J
	R197,297	0B01683A	Carbon Resistor 15K ERD-25T J
	731,831		
	R199,299	0B01857A	Carbon Resistor 1K ERD-25T J
	305,308		
	706,711		
	722,806		
	811,822		
	R303	0B09306A	Fail Safe Type Resistor 68 RDF-25S J
	R306	0B09383A	Fail Safe Type Resistor 390 RDF-25S J
	R307	0B05509A	Carbon Resistor 33K ERD-25T J
	R703,803	0B01888A	Carbon Resistor 10K ERD-25T J
	R704,804	0B05743A	Carbon Resistor 27K ERD-25T J
	R705,715	0B01681A	Carbon Resistor 3.3K ERD-25T J
	805,815		
	R707,807	0B01889A	Carbon Resistor 100K ERD-25T J
	R708,737	0B05627A	Carbon Resistor 330K ERD-25T J
	808,837		
	R712,812	0B01682A	Carbon Resistor 6.8K ERD-25T J
	R713,813	0B09573A	Metal Film Resistor 3.74K SN14K2E F
	R714,814	0B09587A	Metal Film Resistor 24.9K SN14K2E F
	R718,818	0B01856A	Carbon Resistor 8.2K ERD-25T J
	R719,720	0B09331A	Fail Safe Type Resistor 8.2RDF-25S J
	819,820		
	C134,234	0B01405A	Electrolytic Capacitor 1μ 50V
	C135,235	0B01862A	Electrolytic Capacitor 22μ 16V
	C136,236	0B09242A	Mica Capacitor 47P 50V J
	C137,237	0B09262A	PP Capacitor 3000P 100V J
	C138,238	0B01913A	Mylar Capacitor 1800P 50V J
	C303,305	0B01272A	Electrolytic Capacitor 100μ 25V
	306,307		
	706,806		
	C701,801	0B09221A	Electrolytic Capacitor 1.5μ 50V (LN)
	C703,803	0B09409A	PP Capacitor 1800P 100V G
	C704,804	0B01412A	Electrolytic Capacitor 10μ 16V
	C705,805	0B01863A	Electrolytic Capacitor 3.3μ 50V
		— Meter Amp. —	
	Q707,708	0B06100A	Transistor 2SC945 (A)
	807,808		
	ZD701,801	0B06058A	Zener Diode 5.1V YZ051
	D704,705	0B06181A	Silicon Diode 1SS53
	706,804		
	805,806		
	VR701,801	0B07237A	Semi-fixed Volume 50K
	R304	0B09383A	Fail Safe Type Resistor 390 RDF-25S J
	R723,823	0B05641A	Carbon Resistor 47K ERD-25T J
	R724,824	0B09451A	Metal Film Resistor 47K SN14K2E F
	R726,729	0B01889A	Carbon Resistor 100K ERD-25T J
	826,829		
	R727,827	0B09197A	Metal Film Resistor 820K SN14K2E F
	R728,828	0B01888A	Carbon Resistor 10K ERD-25T J
	R730,830	0B05743A	Carbon Resistor 27K ERD-25T J
	C304	0B01272A	Electrolytic Capacitor 100μ 25V
	C708,808	0B01412A	Electrolytic Capacitor 10μ 16V
	C709,809	0B09137A	Electrolytic Capacitor 22μ 16V (LN)
	C710,810	0B09385A	Electrolytic Capacitor 0.33μ 50V (LN)

Schematic Ref. No.	Part No.	Description
	— Power Supply —	
IC401	0B06237A	Regulator IC μA7824
D401	0B06183A	Diode Bridge RB151
D402	0B06181A	Silicon Diode 1SS53
R301	0B09339A	Fail Safe Type Resistor 3.3RDF-25S J
R401	0B01887A	Carbon Resistor 5.6K ERD-25T J
R402	0B01857A	Carbon Resistor 1K ERD-25T J
C301	0B01870A	Electrolytic Capacitor 1000μ 25V
C309	0B09286A	Ceramic Capacitor 470P 50V K
C401	0B09336A	Electrolytic Capacitor 2200μ 50V
C402	0B09250A	Electrolytic Capacitor 4700μ 25V
C403	0B01412A	Electrolytic Capacitor 10μ 16V
C404	0B01400A	Electrolytic Capacitor 100μ 16V
	— Miscellaneous —	
	0B07963A	Main P.C.B.
F401,402	0B08374A	Fuse 1A 250V (U.S.A., Canada & Others)
F401,402	0B08686A	Fuse 1A 250V (Japan)
F401	0B08275A	Fuse T125mA 250V (220V Class 2, UK & Australia)
F402	0B08457A	Fuse T500mA 250V (220V Class 2, UK & Australia)
M2	0B08342A	Spark Killer (U.S.A. & Canada)
M2	0B08363A	Spark Killer (Japan)
M2,3	0B08445A	Spark Killer (220V Class 2)
M2	0B08240U	Spark Killer (UK, Australia & Others)
CN3	0B08654A	4P-T Post
	0B07315A	Push Switch (1 pce.)
	0B08675A	Pin Jack (1 pce.)
	0B08676A	Heat Sink (1 pce.)
	0M03782A	Fuse Label 1Ax250V (1 pce.) (U.S.A., Canada, Japan & Others)
	0M04082B	Fuse Label T125mA 250V (1 pce.) (220V Class 2, UK & Australia)
	0M04096B	Fuse Label T500mA 250V (1 pce.) (220V Class 2, UK & Australia)
	0B08349A	Fuse Clip (4 pcs.) (220V Class 2, UK & Australia)
	0E00857A	BT Screw M3x6 Philips Binding Head (2 pcs.)
	0E00612A	Screw M3x6 Philips Pan Head (2A) (1 pce.)
	0E00507A	Nut Hex. M3 (1 pce.)

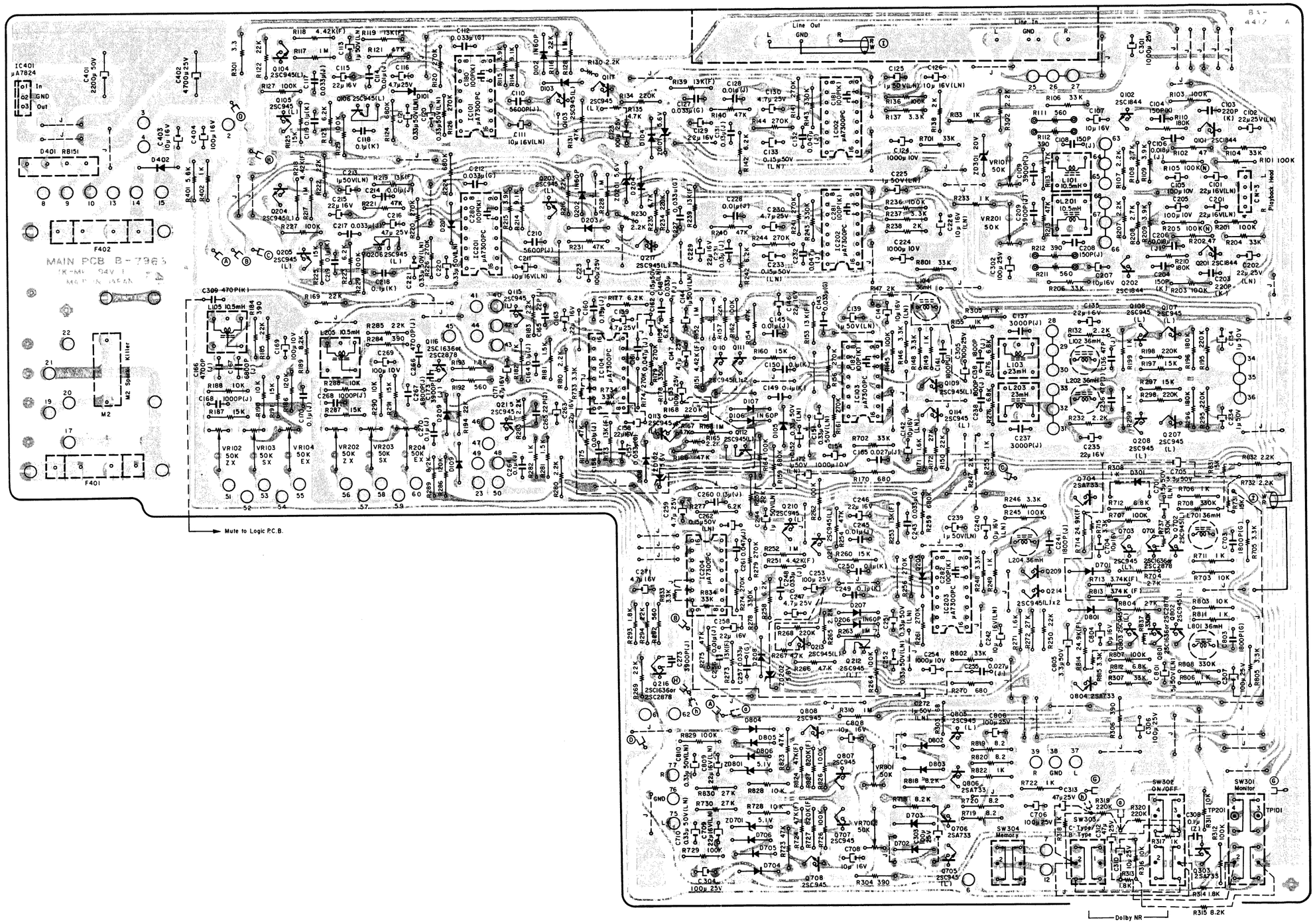


Fig. 7.1.2 Serial Nos.: A12001001 – A12001120

Note: Diode is 1SS53 unless otherwise specified.

7.2. Logic P.C.B. Ass'y

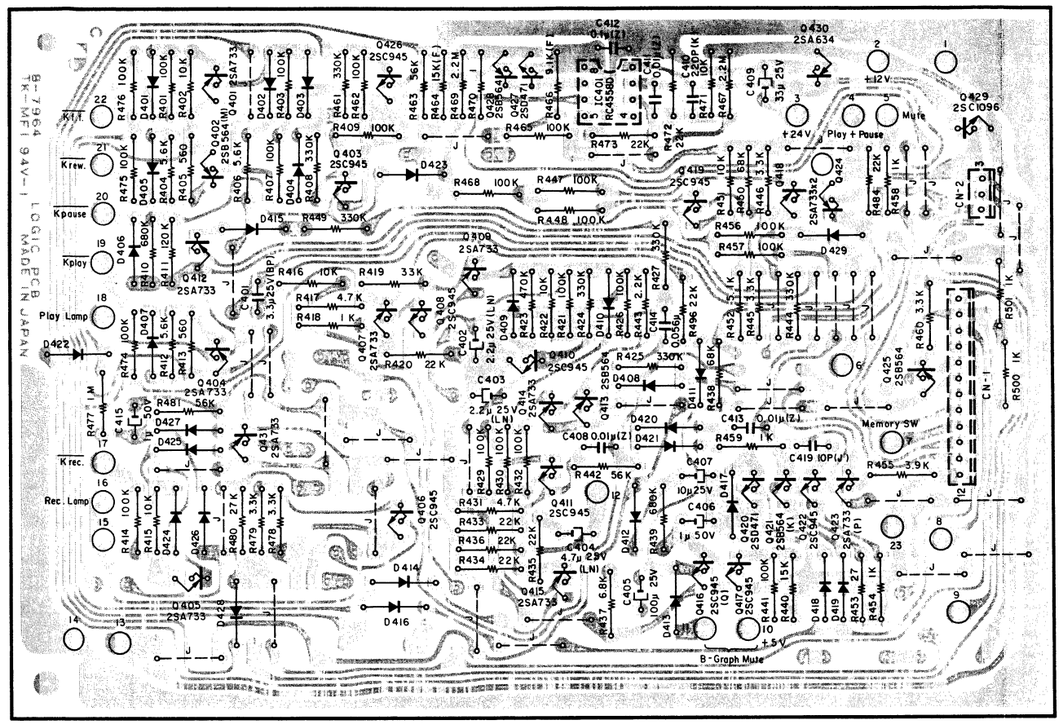


Fig. 7.2.1 Serial No.: A12002626 –

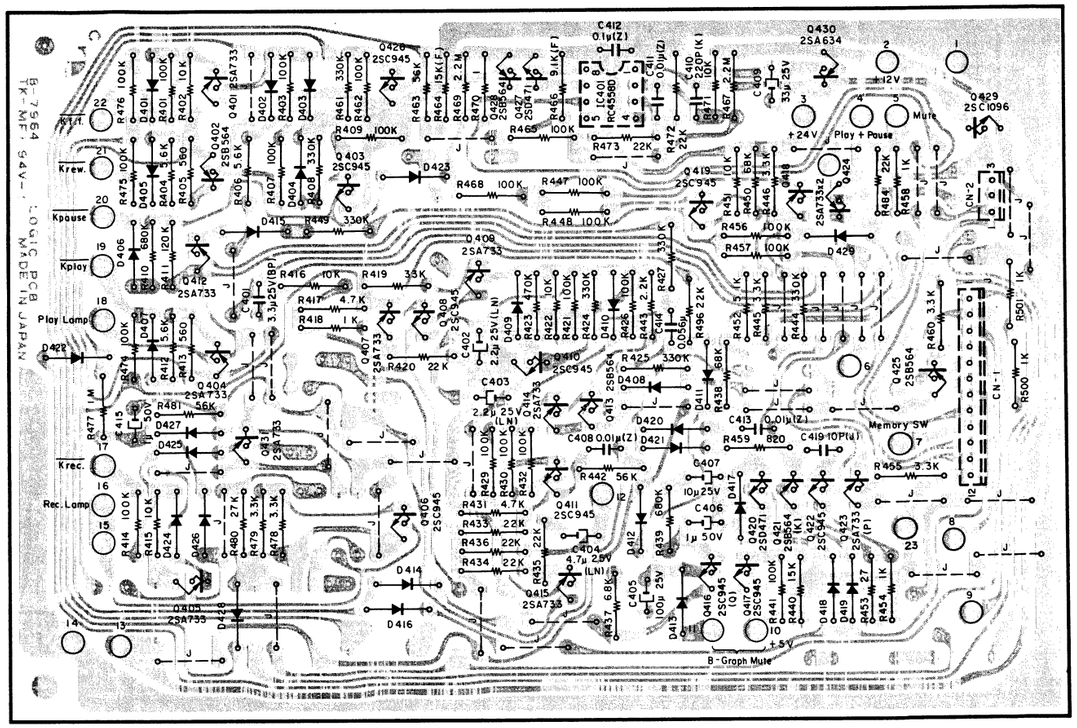


Fig. 7.2.2 Serial Nos.: A12001001 – A12002625

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04511A	Logic P.C.B. Ass'y
		Serial No.: A12002626 –
	0B07964C	Logic P.C.B.
IC401	0B06124B	IC RC4558D
Q401,404	0B06013A	Transistor 2SA733
405,407		
409,412		
414,415		
418,424		
431		
Q402	0B06332A	Transistor 2SB564 (M)
Q403,406	0B06100A	Transistor 2SC945 (A)
408,410		
411,417		
419,422		
426		
Q413,425	0B06069A	Transistor 2SB564
428		
Q416	0B06251A	Transistor 2SC945 (Q)
Q420,427	0B06066A	Transistor 2SD471
Q421	0B06252A	Transistor 2SB564 (K)
Q423	0B06155A	Transistor 2SA733 (P)
Q429	0B06020A	Transistor 2SC1096
Q430	0B06012A	Transistor 2SA634
D401-429	0B06181A	Silicon Diode 1SS53 (29 pcs.)
R401,403	0B01889A	Carbon Resistor 100K ERD-25T J
407,409		
414,421		
426,429		
430,432		
441,447		
448,456		
457,462		
465,468		
474,475		
476		
R402,415	0B01888A	Carbon Resistor 10K ERD-25T J
416,422		
451,471		
R404,406	0B01887A	Carbon Resistor 5.6K ERD-25T J
412		
R405,413	0B05575A	Carbon Resistor 560 ERD-25T J
R408,424	0B05627A	Carbon Resistor 330K ERD-25T J
425,427		
444,449		
461		
R410,439	0B09335A	Carbon Resistor 680K ERD-25T J
R411	0B05621A	Carbon Resistor 120K ERD-25T J
R417,431	0B01846A	Carbon Resistor 4.7K ERD-25T J
R418,454	0B01857A	Carbon Resistor 1K ERD-25T J
458,459		
500,501		
R419	0B05509A	Carbon Resistor 33K ERD-25T J
R420,433	0B05615A	Carbon Resistor 22K ERD-25T J
434,435		
436,472		
473,484		
496		
R423	0B01684A	Carbon Resistor 470K ERD-25T J
R437	0B01682A	Carbon Resistor 6.8K ERD-25T J
R438,450	0B05692A	Carbon Resistor 68K ERD-25T J
R440	0B01683A	Carbon Resistor 15K ERD-25T J

Schematic Ref. No.	Part No.	Description
R442,463	0B05508A	Carbon Resistor 56K ERD-25T J
481		
R443	0B05622A	Carbon Resistor 2.2K ERD-25T J
R445,446	0B01681A	Carbon Resistor 3.3K ERD-25T J
460,478		
479		
R452	0B09314A	Carbon Resistor 5.1K ERD-25T J
R453	0B09384A	Fail Safe Type Resistor 27 RDF-25S J
R455	0B05675A	Carbon Resistor 3.9K ERD-25T J
R464	0B09340A	Metal Film Resistor 15K SN14K2E F
R466	0B09328A	Metal Film Resistor 9.1K SN14K2E F
R467,469	0B05671A	Carbon Resistor 2.2M ERD-25T J
R470	0B09214A	Fail Safe Type Resistor 1 RDF-25S J
R477	0B05776A	Carbon Resistor 1M ERD-25T J
R480	0B05743A	Carbon Resistor 27K ERD-25T J
C401	0B09345A	Electrolytic Capacitor 3.3μ 25V (BP)
C402,403	0B09332A	Electrolytic Capacitor 2.2μ 25V (LN)
C404	0B09333A	Electrolytic Capacitor 4.7μ 25V (LN)
C405	0B01272A	Electrolytic Capacitor 100μ 25V
C406,415	0B01405A	Electrolytic Capacitor 1μ 50V
C407	0B01674A	Electrolytic Capacitor 10μ 25V
C408,411	0B09290A	Ceramic Capacitor 0.01μ 50V Z
413		
C409	0B09251A	Electrolytic Capacitor 33μ 25V
C410	0B09283A	Ceramic Capacitor 220P 50V K
C412	0B09292A	Ceramic Capacitor 0.1μ 50V Z
C414	0B01676A	Mylar Capacitor 0.056μ 50V
C419	0B09277A	Ceramic Capacitor 10P 50V J
CN1	0B08681A	12P-T Post
CN2	0B08653A	3P-T Post
	0B08606A	Transistor Mica TO-202 (1 pce.)
	0B08607A	Transistor Bushing TO-202 (1 pce.)
	0E00507A	Nut Hex. M3 (1 pce.)
	0E00607A	Screw M3x8 Philips Pan Head (3A) (1 pce.)
	0E00857A	BT Screw M3x6 Philips Binding Head (4 pcs.)
	0J04349A	P.C.B. Holder L (1 pce.)
	0J04350A	P.C.B. Holder R (1 pce.)

Schematic Ref. No.	Part No.	Description
	BA04415A	Logic P.C.B. Ass'y
		Serial Nos.: A12001001 – A12002625
	0B07964C	Logic P.C.B.
IC401	0B06124B	IC RC4558D
Q401,404	0B06013A	Transistor 2SA733
405,407		
409,412		
414,415		
418,424		
431		
Q402,413	0B06069A	Transistor 2SB564
425,428		
Q403,406	0B06100A	Transistor 2SC945 (A)
408,410		
411,417		
419,422		
426		
Q416	0B06251A	Transistor 2SC945 (Q)
Q420,427	0B06066A	Transistor 2SD471
Q421	0B06252A	Transistor 2SB564 (K)
Q423	0B06155A	Transistor 2SA733 (P)
Q429	0B06020A	Transistor 2SC1096
Q430	0B06012A	Transistor 2SA634
D401-429	0B06181A	Diode 1SS53 (29 pcs.)
R401,403	0B01889A	Carbon Resistor 100K ERD-25T J
407,409		
414,421		
426,429		
430,432		
441,447		
448,456		
457,462		
465,468		
474,475		
476		
R402,415	0B01888A	Carbon Resistor 10K ERD-25T J
416,422		
451,471		
R404,406	0B01887A	Carbon Resistor 5.6K ERD-25T J
412		
R405,413	0B05575A	Carbon Resistor 560 ERD-25T J
R408,424	0B05627A	Carbon Resistor 330K ERD-25T J
425,427		
444,449		
461		
R410,439	0B09335A	Carbon Resistor 680K ERD-25T J
R411	0B05621A	Carbon Resistor 120K ERD-25T J
R417,431	0B01846A	Carbon Resistor 4.7K ERD-25T J
R418,454	0B01857A	Carbon Resistor 1K ERD-25T J
458,500		
501		
R419	0B05509A	Carbon Resistor 33K ERD-25T J
R420,433	0B05615A	Carbon Resistor 22K ERD-25T J
434,435		
436,472		
473,484		
496		
R423	0B01684A	Carbon Resistor 470K ERD-25T J
R437	0B01682A	Carbon Resistor 6.8K ERD-25T J
R438,450	0B05692A	Carbon Resistor 68K ERD-25T J
R440	0B01683A	Carbon Resistor 15K ERD-25T J

Schematic Ref. No.	Part No.	Description
R442,463	0B05508A	Carbon Resistor 56K ERD-25T J
481		
R443	0B05622A	Carbon Resistor 2.2K ERD-25T J
R445,446	0B01681A	Carbon Resistor 3.3K ERD-25T J
455,460		
478,479		
R452	0B09314A	Carbon Resistor 5.1K ERD-25T J
R453	0B09384A	Fail Safe Type Resistor 27 RDF-25S J
R459	0B01680A	Carbon Resistor 820 ERD-25T J
R464	0B09340A	Metal Film Resistor 15K SN14K2E F
R466	0B09328A	Metal Film Resistor 9.1K SN14K2E F
R467,469	0B05671A	Carbon Resistor 2.2M ERD-25T J
R470	0B09214A	Fail Safe Type Resistor 1 RDF-25S J
R477	0B05776A	Carbon Resistor 1M ERD-25T J
R480	0B05743A	Carbon Resistor 27K ERD-25T J
C401	0B09345A	Electrolytic Capacitor 3.3μ 25V (BP)
C402,403	0B09332A	Electrolytic Capacitor 2.2μ 25V (LN)
C404	0B09333A	Electrolytic Capacitor 4.7μ 25V (LN)
C405	0B01272A	Electrolytic Capacitor 100μ 25V
C406,415	0B01405A	Electrolytic Capacitor 1μ 50V
C407	0B01674A	Electrolytic Capacitor 10μ 25V
C408,411	0B09290A	Ceramic Capacitor 0.01μ 50V Z
413		
C409	0B09251A	Electrolytic Capacitor 33μ 25V
C410	0B09283A	Ceramic Capacitor 220P 50V K
C412	0B09292A	Ceramic Capacitor 0.1μ 50V Z
C414	0B01676A	Mylar Capacitor 0.056μ 50V
C419	0B09277A	Ceramic Capacitor 10P 50V J
CN1	0B08681A	12P-T Post
CN2	0B08653A	3P-T Post
	0B08606A	Transistor Mica TO-202 (1 pce.)
	0B08607A	Transistor Bushing TO-202 (1 pce.)
	0E00507A	Nut Hex. M3 (1 pce.)
	0E00510A	Screw M3x8 Philips Pan Head (2A) (1 pce.)
	0E00857A	BT Screw M3x6 Philips Binding Head (4 pcs.)
	0J04349A	P.C.B. Holder L (1 pce.)
	0J04350A	P.C.B. Holder R (1 pce.)

7.3. Volume P.C.B. Ass'y

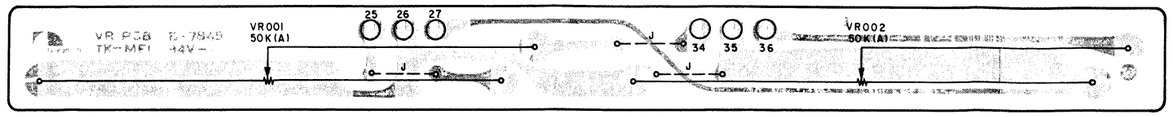


Fig. 7.3

7.4. Lamp P.C.B. Ass'y

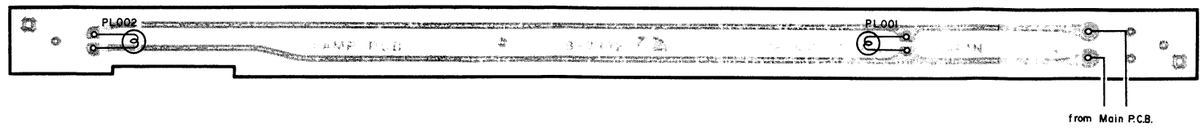


Fig. 7.4

7.5. MPX Filter Switch P.C.B. Ass'y

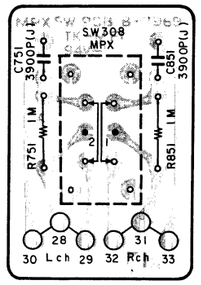


Fig. 7.5

7.6. Headphone Switch P.C.B. Ass'y

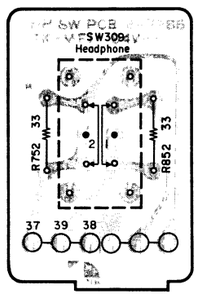


Fig. 7.6

7.7. Bias Tune Volume P.C.B. Ass'y

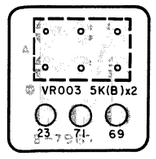


Fig. 7.7

7.8. Indicator P.C.B. Ass'y

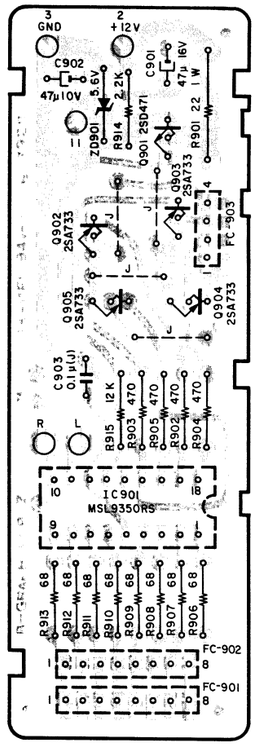


Fig. 7.8

7.9. Switch P.C.B. Ass'y

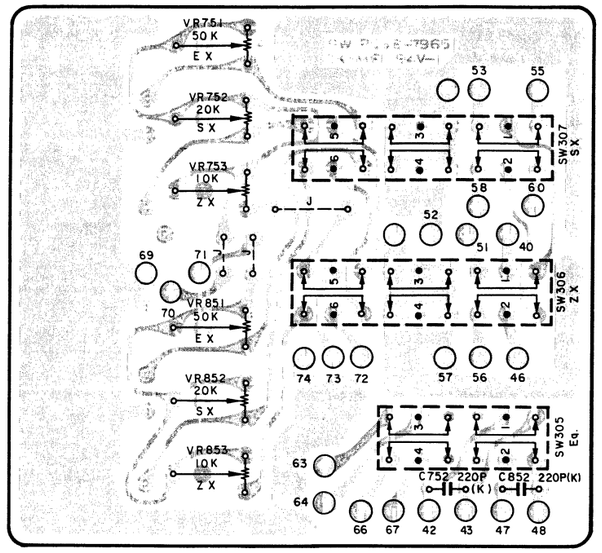


Fig. 7.9

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04114A	**Volume P.C.B. Ass'y**		**BA04313A**	**Indicator P.C.B. Ass'y**
	0B07845B	Volume P.C.B.		0B07928A	Indicator P.C.B.
VR001,002	0B07298A	Slide Volume 50K (A)	IC901	0B06284A	IC MSL9350RS
	BA04416A	**Lamp P.C.B. Ass'y**	Q901	0B06066A	Transistor 2SD471
	0B07932A	Lamp P.C.B.	Q902,903 904,905	0B06013A	Transistor 2SA733
PL001,002	0B08674A	Lamp 5V 200mA	ZD901	0B06268A	Zener Diode 5.6V RD5.6EB3
	BA04402A	**MPX Filter Switch P.C.B. Ass'y**	R901	0B09378A	Fail Safe Type Resistor 22 RSF-1B J
	0B07969A	MPX Filter Switch P.C.B.	R902,903 904,905	0B05576A	Carbon Resistor 470 ERD-25T J
R751,851	0B05776A	Carbon Resistor 1M ERD-25T J	R906,907 908,909 910,911 912,913	0B01704A	Carbon Resistor 68 ERD-25T J
C751,851	0B01804A	Mylar Capacitor 3900P 50V J	R914	0B05622A	Carbon Resistor 2.2K ERD-25T J
SW308	0B07369A	Slide Switch 22S	R915	0B09263A	Carbon Resistor 12K ERD-25T J
	BA04420A	**Headphone Switch P.C.B. Ass'y**	C901	0B01403A	Electrolytic Capacitor 47μ 16V
	0B07966A	Headphone Switch P.C.B.	C902	0B01836A	Electrolytic Capacitor 47μ 10V
R752,852	0B01713A	Carbon Resistor 33 ERD-25T J	C903	0B01780A	Mylar Capacitor 0.1μ 50V J
SW309	0B07369A	Slide Switch 22S	FC901	0B05236A	8P Flat Cable
	BA04372A	**Bias Tune Volume P.C.B. Ass'y**	FC902	0B05251A	8P Flat Cable 80mm
	0B07967A	Bias Tune Volume P.C.B.	FC903	0B05252A	4P Flat Cable 35mm
VR003	0B07355A	Volume 5K (B) x 2		0B06291A	Indicator SEL8806N (1 pce.)
				BA04417A	**Switch P.C.B. Ass'y**
				0B07965A	Switch P.C.B.
			VR751,851	0B07237A	Semi-fixed Volume 50K
			VR752,852	0B07261A	Semi-fixed Volume 20K
			VR753,853	0B07236A	Semi-fixed Volume 10K
			C752,852	0B09283A	Ceramic Capacitor 220P 50V K
				0B07314A	Push Switch (1 pce.)

7.10. Shut-off P.C.B. Ass'y

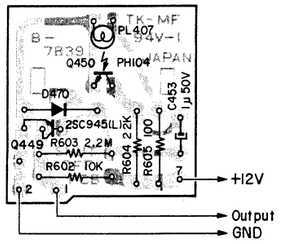


Fig. 7.10

Note: Diode is 1SS53 unless otherwise specified.

7.11. Control P.C.B. Ass'y

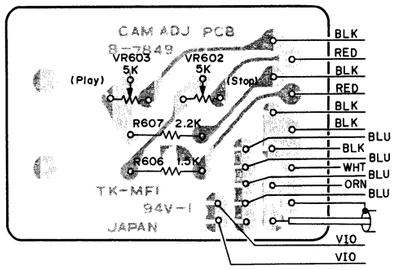


Fig. 7.11

7.12. Control Switch P.C.B. Ass'y

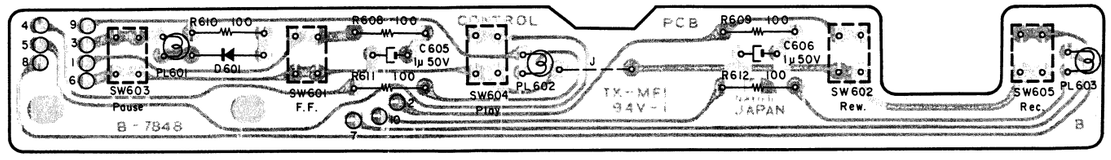


Fig. 7.12

Note: Diode is 1SS53 unless otherwise specified.

7.13. Bias Oscillator P.C.B. Ass'y

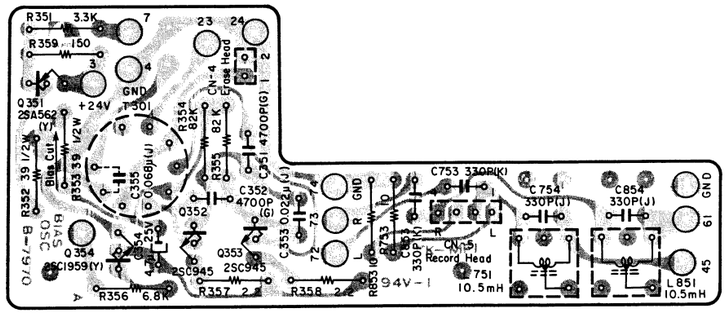


Fig. 7.13.1 Serial No.: A12001121 –

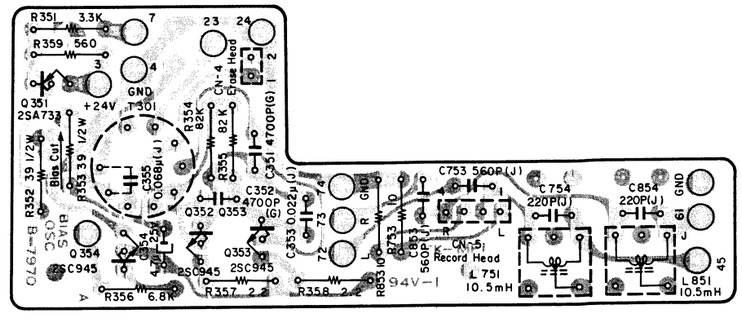


Fig. 7.13.2 Serial Nos.: A12001001 – A12001120

Schematic Ref. No.	Part No.	Description
	BA04070A	**Shut-off P.C.B. Ass'y**
	0B07839A	Shut-off P.C.B.
Q449	0B01872A	Transistor 2SC945 (L)
Q450	0B06228A	Photo Transistor PH104
D470	0B06181A	Silicon Diode 1SS53
R602	0B01888A	Carbon Resistor 10K ERD-25T J
R603	0B05671A	Carbon Resistor 2.2M ERD-25T J
R604	0B05615A	Carbon Resistor 22K ERD-25T J
R605	0B09215A	Fail Safe Type Resistor 100 RDF-25S J
C453	0B01405A	Electrolytic Capacitor 1μ 50V
PL407	0B08552A	Lamp 12V 25mA

Schematic Ref. No.	Part No.	Description
	BA04126A	**Control P.C.B. Ass'y**
	0B07849B	Control P.C.B.
VR602,603	0B09059A	Semi-fixed Volume 5K
R606	0B05698A	Carbon Resistor 1.5K ERD-25T J
R607	0B05622A	Carbon Resistor 2.2K ERD-25T J
	BA04424A	**Control Switch P.C.B. Ass'y**
	0B07848B	Control Switch P.C.B.
D601	0B06181A	Silicon Diode 1SS53
R608,609	0B01679A	Carbon Resistor 100 ERD-25T J
R610,611 612	0B09215A	Fail Safe Type Resistor 100 RDF-25S J
C605,606	0B01405A	Electrolytic Capacitor 1μ 50V
PL601,602 603	0B08885A	Lamp 24V 30mA
	0B07297A	Control Switch (1 pce.)

Schematic Ref. No.	Part No.	Description
	BA04433A	**Bias Oscillator P.C.B. Ass'y** Serial No.: A12001121 –
	0B07970A	Bias Oscillator P.C.B.
Q351	0B06202A	Transistor 2SA562 (Y)
Q352,353	0B06100A	Transistor 2SC945 (A)
Q354	0B06179A	Transistor 2SC1959 (Y)
T301	0B06613A	Osc. Coil
L751,851	0B00068A	Trap Coil 10.5mH
R351	0B01681A	Carbon Resistor 3.3K ERD-25T J
R352,353	0B09296A	Fail Safe Type Resistor 39 RSF-1/2B J
R354,355	0B05668A	Carbon Resistor 82K ERD-25T J
R356	0B01682A	Carbon Resistor 6.8K ERD-25T J
R357,358	0B09212A	Fail Safe Type Resistor 2.2 RDF-25S J
R359	0B05795A	Carbon Resistor 150 ERD-25T J
R753,853	0B05936A	Carbon Resistor 10 ERD-25T J
C351,352	0B09191A	PP Capacitor 4700P 100V G
C353	0B09405A	PP Capacitor 0.022μ 100V J
C354	0B01402A	Electrolytic Capacitor 4.7μ 25V
C355	0B09254A	PP Capacitor 0.068μ 100V J
C753,853	0B09285A	Ceramic Capacitor 330P 50V K
C754,854	0B09322A	PP Capacitor 330P 100V J
CN4	0B08656A	2P-T Post
CN5	0B08654A	4P-T Post
	0J04417A	Osc. Coil Shield Plate (1 pce.)
	0J03834C	Fuse P.C.B. Holder (1 pce.)
	0E00896A	Screw M3x6 Philips Binding Head (Chromate) (2 pcs.)

Schematic Ref. No.	Part No.	Description
	BA04433A	**Bias Oscillator P.C.B. Ass'y** Serial Nos.: A12001001 – A12001120
	0B07970A	Bias Oscillator P.C.B.
Q351	0B06013A	Transistor 2SA733
Q352,353	0B06100A	Transistor 2SC945 (A)
354		
T301	0B06613A	Osc. Coil
L751,851	0B00068A	Trap Coil 10.5mH
R351	0B01681A	Carbon Resistor 3.3K ERD-25T J
R352,353	0B09296A	Fail Safe Type Resistor 39 RSF-1/2B J
R354,355	0B05668A	Carbon Resistor 82K ERD-25T J
R356	0B01682A	Carbon Resistor 6.8K ERD-25T J
R357,358	0B09212A	Fail Safe Type Resistor 2.2 RDF-25S J
R359	0B05575A	Carbon Resistor 560 ERD-25T J
R753,853	0B05936A	Carbon Resistor 10 ERD-25T J
C351,352	0B09191A	PP Capacitor 4700P 100V G
C353	0B09405A	PP Capacitor 0.022μ 100V J
C354	0B01402A	Electrolytic Capacitor 4.7μ 25V
C355	0B09254A	PP Capacitor 0.068μ 100V J
C753,853	0B09379A	Ceramic Capacitor 560P 50V K
C754,854	0B09155A	PP Capacitor 220P 100V J
CN4	0B08656A	2P-T Post
CN5	0B08654A	4P-T Post
	0J04417A	Osc. Coil Shield Plate (1 pce.)
	0J03834C	Fuse P.C.B. Holder (1 pce.)
	0E00896A	Screw M3x6 Philips Binding Head (Chromate) (2 pcs.)

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Synthesis

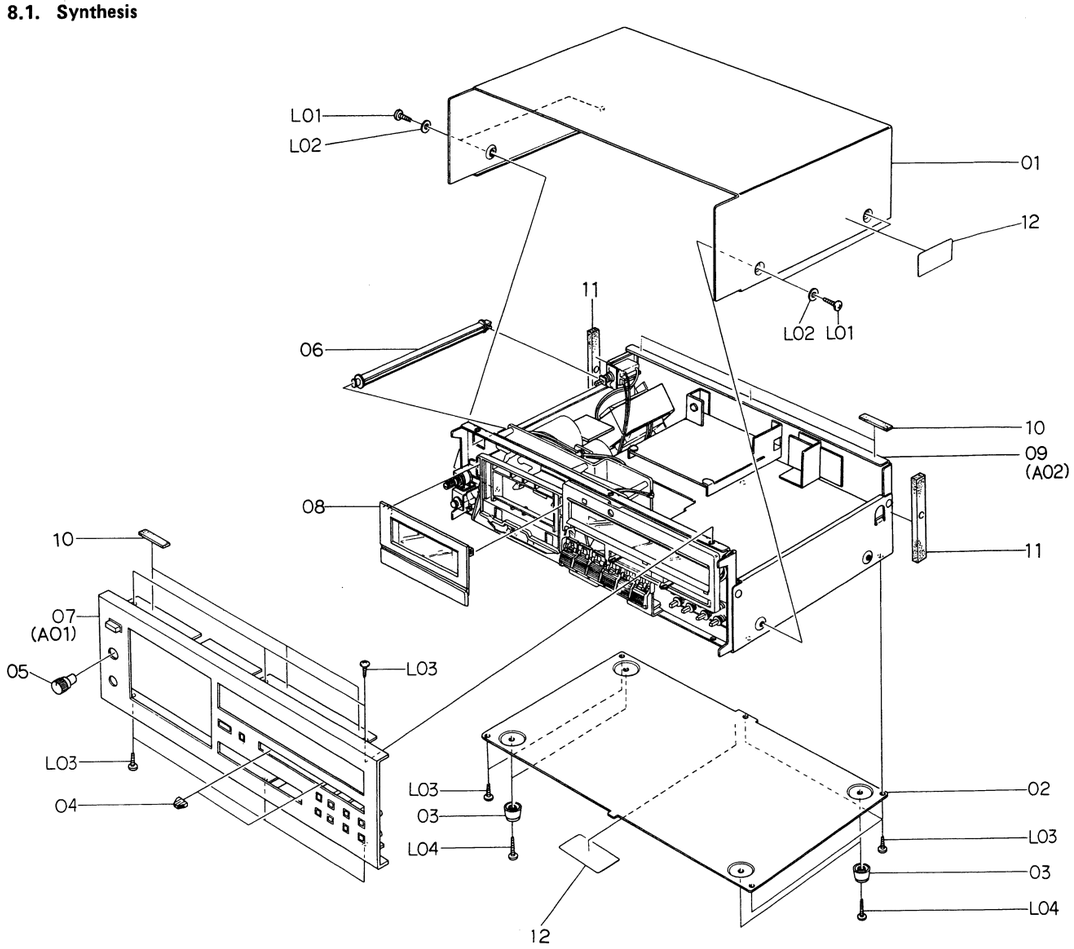


Fig. 8.1

8.2. Front Panel Ass'y (A01)

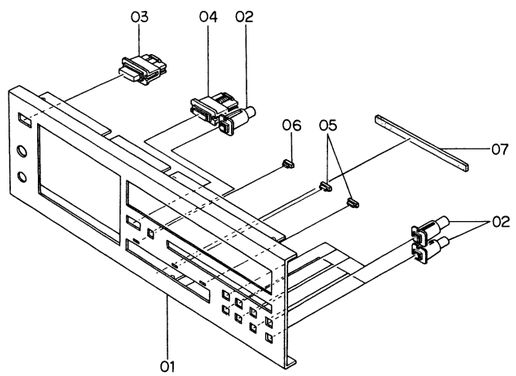


Fig. 8.2

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
	HA04113A	**Synthesis (U.S.A. & Canada)**	**1**		**HA04113A**	**Synthesis (U.S.A. & Canada)**	**1**
	HA04114A	**Synthesis (Japan)**	**1**		**HA04114A**	**Synthesis (Japan)**	**1**
	HA04117A	**Synthesis (220V Class 2)**	**1**		**HA04117A**	**Synthesis (220V Class 2)**	**1**
	HA04112A	**Synthesis (UK)**	**1**		**HA04112A**	**Synthesis (UK)**	**1**
	HA04116A	**Synthesis (Australia)**	**1**		**HA04116A**	**Synthesis (Australia)**	**1**
	HA04115A	**Synthesis (Others)**	**1**		**HA04115A**	**Synthesis (Others)**	**1**
		Serial No.: A12002626 –				Serial Nos.: A12001001 – A12002625	
01	0H03768A	Top Cover	1	01	0H03768A	Top Cover	1
02	0H03769B	Bottom Cover	1	02	0H03769B	Bottom Cover	1
03	0J03564A	Leg T-H	4	03	0J03564A	Leg T-H	4
04	0H03794B	Volume Knob	2	04	0H03794B	Volume Knob	2
05	0H03924A	Bias Adjustment Knob	1	05	0H03924A	Bias Adjustment Knob	1
06	0J04066C	Power Switch Joint Bar	1	06	0J04066C	Power Switch Joint Bar	1
07	HA04093A	Front Panel Ass'y	1	07	HA04093A	Front Panel Ass'y	1
08	HA03872A	Cassette Case Cover Ass'y	1	08	HA03872A	Cassette Case Cover Ass'y	1
09	JA03796B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1	09	JA03796A	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1
	JA03797B	Synthesis Mechanism Ass'y (Japan)	1		JA03797A	Synthesis Mechanism Ass'y (Japan)	1
	JA03800B	Synthesis Mechanism Ass'y (220V Class 2)	1		JA03800A	Synthesis Mechanism Ass'y (220V Class 2)	1
	JA03795B	Synthesis Mechanism Ass'y (UK)	1		JA03795A	Synthesis Mechanism Ass'y (UK)	1
	JA03799B	Synthesis Mechanism Ass'y (Australia)	1		JA03799A	Synthesis Mechanism Ass'y (Australia)	1
	JA03798B	Synthesis Mechanism Ass'y (Others)	1		JA03798A	Synthesis Mechanism Ass'y (Others)	1
10	0H03781A	Cushion A	6	10	0H03781A	Cushion A	6
11	0H03995A	Cushion B	2	11	0H03995A	Cushion B	2
12	0M04101B	Caution Label	2	12	0M04101B	Caution Label	2
L01	0E00858A	BT Screw M4x6 Philips Binding Head (Black Chromate)	4	L01	0E00858A	BT Screw M4x6 Philips Binding Head (Black Chromate)	4
L02	0E00736A	Washer 4mm (Black Chromate)	4	L02	0E00736A	Washer 4mm (Black Chromate)	4
L03	0E00857A	BT Screw M3x6 Philips Binding Head	11	L03	0E00857A	BT Screw M3x6 Philips Binding Head	11
L04	0E00865A	BT Screw M3x10 Philips Binding Head	4	L04	0E00865A	BT Screw M3x10 Philips Binding Head	4
				A01	**HA04093A**	**Front Panel Ass'y** Serial No.: A12001001 –	**1**
				01	0H03934A	Front Panel	1
				02	HA03873A	Push Button Ass'y C	1
				03	HA03874A	Push Button Ass'y D	1
				04	HA03875A	Eject Button Ass'y	1
				05	0H03744B	Green Lens	2
				06	0H03745B	Orange Lens	1
				07	0J04094A	Control Button Pad	1
				–	0J04081A	Adhesive Tape 55x6	5
				–	0J04082A	Adhesive Tape 30x6	2

8.3. Synthesis Mechanism Ass'y (A02)

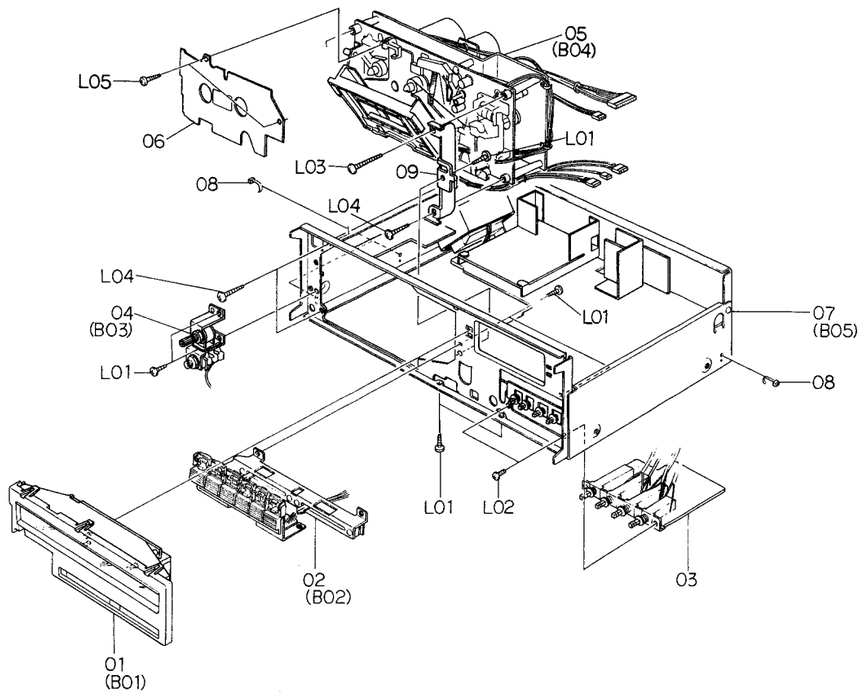


Fig. 8.3

8.4. Meter Escutcheon Ass'y (B01)

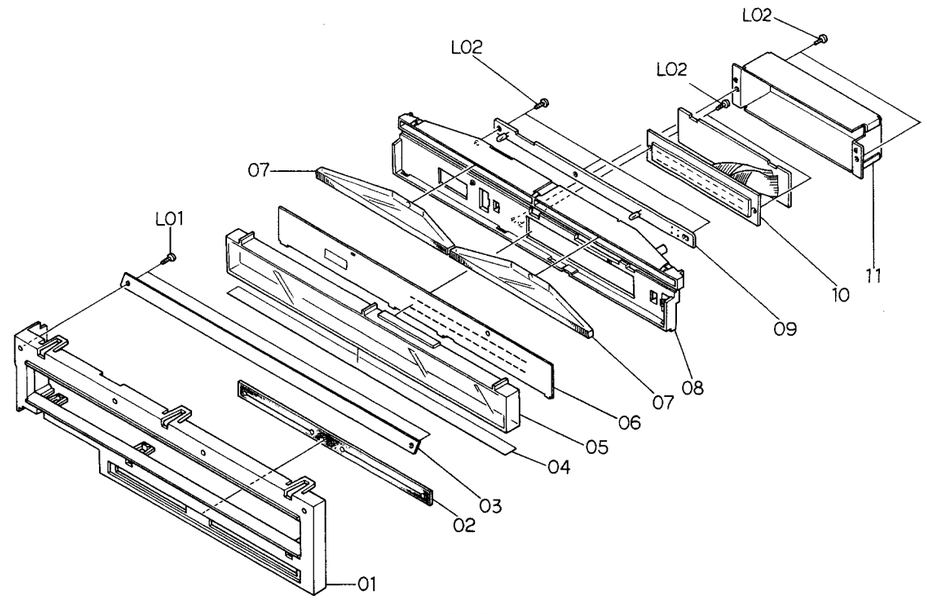


Fig. 8.4

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
A02	JA03796B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1	A02	JA03796A	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1
	JA03797B	Synthesis Mechanism Ass'y (Japan)	1		JA03797A	Synthesis Mechanism Ass'y (Japan)	1
	JA03800B	Synthesis Mechanism Ass'y (220V Class 2)	1		JA03800A	Synthesis Mechanism Ass'y (220V Class 2)	1
	JA03795B	Synthesis Mechanism Ass'y (UK)	1		JA03795A	Synthesis Mechanism Ass'y (UK)	1
	JA03799B	Synthesis Mechanism Ass'y (Australia)	1		JA03799A	Synthesis Mechanism Ass'y (Australia)	1
	JA03798B	Synthesis Mechanism Ass'y (Others) Serial No.: A12002626 —	1		JA03798A	Synthesis Mechanism Ass'y (Others) Serial Nos.: A12001001 — A12002625	1
01	HA04089A	Meter Escutcheon Ass'y	1	01	HA04089A	Meter Escutcheon Ass'y	1
02	JA03850A	Control Switch Holder Ass'y	1	02	JA03850A	Control Switch Holder Ass'y	1
03	BA04417A	Switch P.C.B. Ass'y	1	03	BA04417A	Switch P.C.B. Ass'y	1
04	JA03782A	Headphone Jack Ass'y	1	04	JA03782A	Headphone Jack Ass'y	1
05	CA08314A	Mechanism Ass'y 482Z	1	05	CA08268A	Mechanism Ass'y 482Z	1
06	CA08276A	Cover Plate Ass'y	1	06	CA08276A	Cover Plate Ass'y	1
07	JA03777B	Chassis Ass'y (U.S.A. & Canada)	1	07	JA03777A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03778B	Chassis Ass'y (Japan)	1		JA03778A	Chassis Ass'y (Japan)	1
	JA03781B	Chassis Ass'y (220V Class 2)	1		JA03781A	Chassis Ass'y (220V Class 2)	1
	JA03776B	Chassis Ass'y (UK)	1		JA03776A	Chassis Ass'y (UK)	1
	JA03780B	Chassis Ass'y (Australia)	1		JA03780A	Chassis Ass'y (Australia)	1
	JA03779B	Chassis Ass'y (Others)	1		JA03779A	Chassis Ass'y (Others)	1
08	0B08515A	Insu-Lock	18	08	0B08515A	Insu-Lock	18
09	0J04130B	Mechanism Bracket	1	09	0J04130B	Mechanism Bracket	1
L01	0E00857A	BT Screw M3x6 Philips Binding Head	7	L01	0E00857A	BT Screw M3x6 Philips Binding Head	7
L02	0E00502A	Screw M3x5 Philips Pan Head	2	L02	0E00502A	Screw M3x5 Philips Pan Head	2
L03	0E00924A	BT Screw M4x16 Philips Binding Head (Chromate)	1	L03	0E00924A	BT Screw M4x16 Philips Binding Head (Chromate)	1
L04	0E00944A	BT Screw M4x15 Philips Binding Head (Black Chromate)	3	L04	0E00867A	BT Screw M4x15 Philips Binding Head	3
L05	0E00832A	BT Screw M3x14 Philips Pan Head	2	L05	0E00832A	BT Screw M3x14 Philips Pan Head	2
				B01	**HA04089A**	**Meter Escutcheon Ass'y** Serial No.: A12001001 —	**1**
				01	0H03931A	Meter Escutcheon	1
				02	0H03786B	Volume Cover	1
				03	0H03926A	Mirror	1
				04	0H03928A	Light Intercepting Seal	1
				05	0H03929A	Meter Cover	1
				06	0H03927B	Meter Scale	1
				07	0H03925A	Lamp House	2
				08	0H03930B	Meter Base	1
				09	BA04416A	Lamp P.C.B. Ass'y	1
				10	BA04313A	Indicator P.C.B. Ass'y	1
				11	0J04298A	Shield Case	1
				L01	0E00855A	BT Screw M2x6 Philips Binding Head	2
				L02	0E00841A	BT Screw M2x4 Philips Pan Head	7

8.5. Control Switch Holder Ass'y (B02)

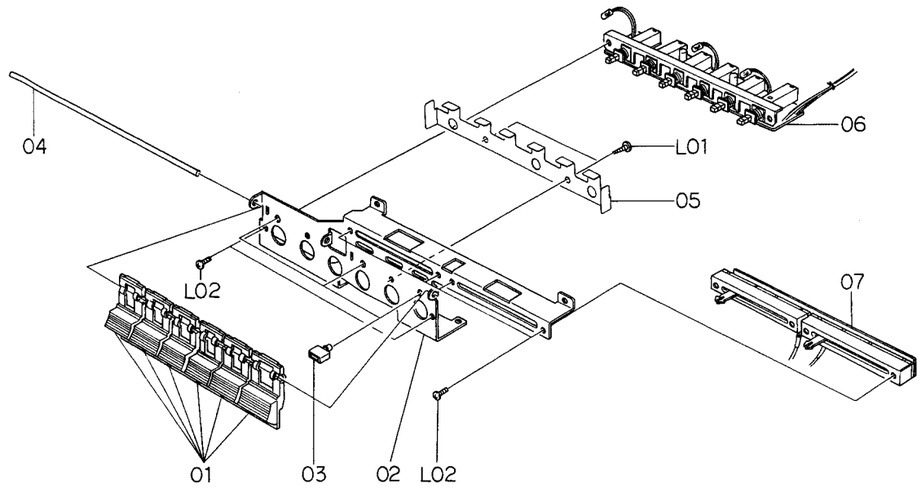


Fig. 8.5

8.6. Headphone Jack Ass'y (B03)

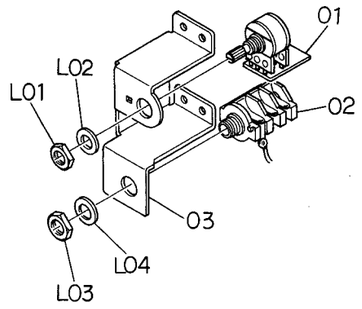


Fig. 8.6

Schematic Ref. No.	Part No.	Description	Q'ty
B02	**JA03850A**	**Control Switch Holder Ass'y** Serial No.: A12001001 –	**1**
01	0H03793A	Control Button	6
02	0J04355A	Control Switch Holder	1
03	0J04356A	Lamp Cover	3
04	0J04073A	Control Button Shaft	1
05	0J04357A	Control Button Spring	1
06	BA04424A	Control Switch P.C.B. Ass'y	1
07	BA04114A	Volume P.C.B. Ass'y	1
L01	0E00857A	BT Screw M3x6 Philips Binding Head	2
L02	0E00502A	Screw M3x5 Philips Pan Head	6
L03	0E00117A	Washer 2mm	2

Schematic Ref. No.	Part No.	Description	Q'ty
B03	**JA03782A**	**Headphone Jack Ass'y** Serial No.: A12001001 –	**1**
01	BA04372A	Bias Tune Volume P.C.B. Ass'y	1
02	0B08511A	Headphone Jack	1
03	0J04299A	Headphone Jack Holder	1
L01	–	Bias Tune Volume Nut	(1)
L02	–	Bias Tune Volume Washer	(1)
L03	–	Headphone Jack Nut	(1)
L04	–	Headphone Jack Washer	(1)

8.7. Mechanism Ass'y 482Z (B04)

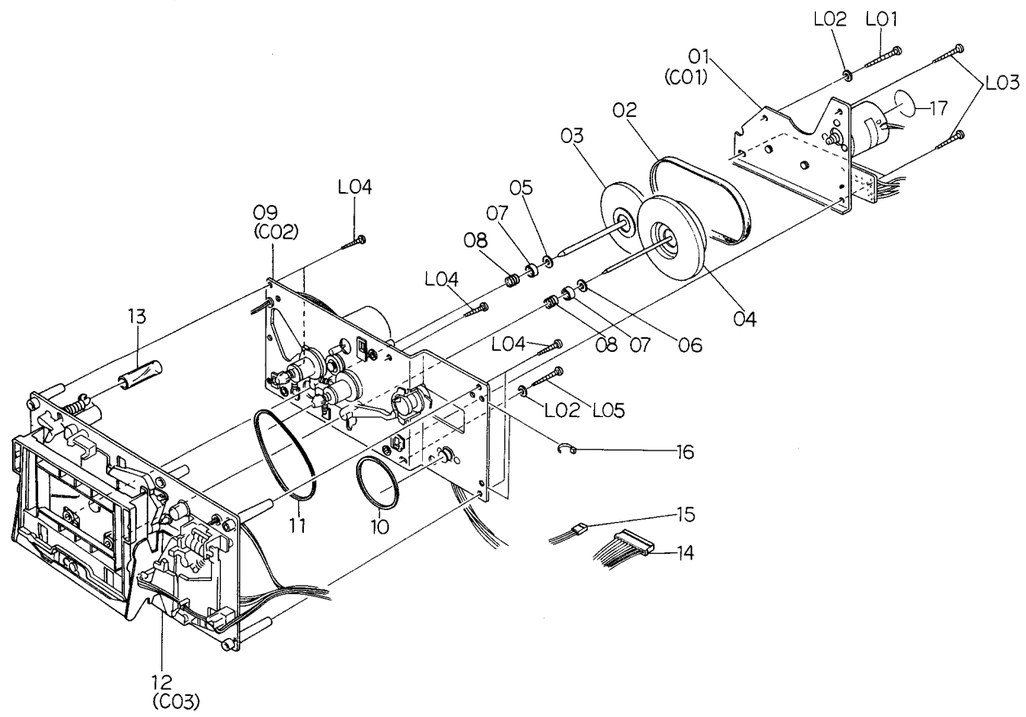


Fig. 8.7

Schematic Ref. No.	Part No.	Description	Q'ty
B04	**CA08314A**	**Mechanism Ass'y 482Z** Serial No.: A12002626 –	**1**
01	CA08109B	Flywheel Holder Ass'y	1
02	0C08096C	Capstan Belt	1
03	CA08169A	Supply Flywheel E Ass'y	1
04	CA08107A	Take-up Flywheel B Ass'y	1
05	0C08021B	Thrust Washer 3.1mm	1
06	0C08020B	Thrust Washer 2.6mm	1
07	0C08243A	Flange Thrust Cap	2
08	0C08244A	Flange Thrust Spring	2
09	CA08315A	Sub Mechanism Chassis Ass'y	1
10	0C08098B	Counter Belt B	1
11	0C08099B	Control Motor Belt	1
12	CA08271A	Main Mechanism Chassis Ass'y	1
13	0C08151A	Lid Arm Spring Tube	1
14	0B08671B	12P-H Connector	1
15	0B08672B	3P-H Connector	1
16	0B08515A	Insu-Lock	9
17	0M03902A	Motor Label	1
L01	0E00834A	BT Screw M3x30 Philips Pan Head	1
L02	0E00178A	Washer 3mm	2
L03	0E00833A	BT Screw M3x20 Philips Pan Head	3
L04	0E00883A	BT Screw M3x18 Philips Pan Head	5
L05	0E00835A	BT Screw M3x25 Philips Pan Head	1

Schematic Ref. No.	Part No.	Description	Q'ty
B04	**CA08268A**	**Mechanism Ass'y 482Z** Serial Nos.: A12001001 – A12002625	**1**
01	CA08109A	Flywheel Holder Ass'y	1
02	0C08096C	Capstan Belt	1
03	CA08169A	Supply Flywheel E Ass'y	1
04	CA08107A	Take-up Flywheel B Ass'y	1
05	0C08021B	Thrust Washer 3.1mm	1
06	0C08020B	Thrust Washer 2.6mm	1
07	0C08243A	Flange Thrust Cap	2
08	0C08244A	Flange Thrust Spring	2
09	CA08232A	Sub Mechanism Chassis Ass'y	1
10	0C08098B	Counter Belt B	1
11	0C08099B	Control Motor Belt	1
12	CA08271A	Main Mechanism Chassis Ass'y	1
13	0C08151A	Lid Arm Spring Tube	1
14	0B08671B	12P-H Connector	1
15	0B08672A	3P-H Connector	1
16	0B08515A	Insu-Lock	9
17	0M03902A	Motor Label	1
L01	0E00834A	BT Screw M3x30 Philips Pan Head	1
L02	0E00178A	Washer 3mm	2
L03	0E00833A	BT Screw M3x20 Philips Pan Head	3
L04	0E00883A	BT Screw M3x18 Philips Pan Head	5
L05	0E00835A	BT Screw M3x25 Philips Pan Head	1

8.8. Chassis Ass'y (B05)

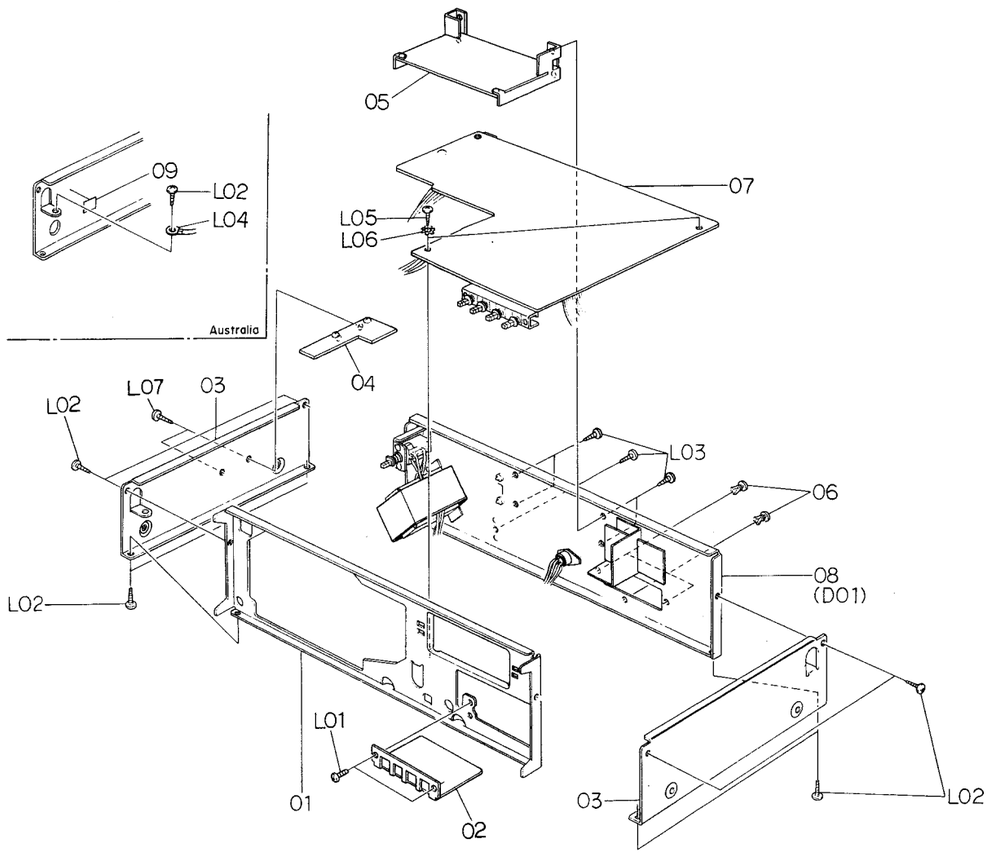


Fig. 8.8

8.9. Flywheel Holder Ass'y (C01)

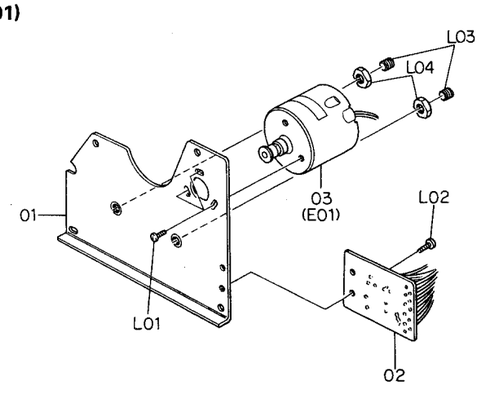


Fig. 8.9

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
B05	**JA03777B**	**Chassis Ass'y (U.S.A. & Canada)**	**1**	**B05**	**JA03777A**	**Chassis Ass'y (U.S.A. & Canada)**	**1**
	JA03778B	**Chassis Ass'y (Japan)**	**1**		**JA03778A**	**Chassis Ass'y (Japan)**	**1**
	JA03781B	**Chassis Ass'y (220V Class 2)**	**1**		**JA03781A**	**Chassis Ass'y (220V Class 2)**	**1**
	JA03776B	**Chassis Ass'y (UK)**	**1**		**JA03776A**	**Chassis Ass'y (UK)**	**1**
	JA03780B	**Chassis Ass'y (Australia)**	**1**		**JA03780A**	**Chassis Ass'y (Australia)**	**1**
	JA03779B	**Chassis Ass'y (Others)**	**1**		**JA03779A**	**Chassis Ass'y (Others)**	**1**
		Serial No.: A12002626 –				Serial Nos.: A12001001 – A12002625	
01	0J04132A	Front Chassis	1	01	0J04132A	Front Chassis	1
02	0J04391A	Switch Shield Cover	1	02	0J04391A	Switch Shield Cover	1
03	0J04069C	Side Chassis	2	03	0J04069C	Side Chassis	2
04	BA04433A	Bias Oscillator P.C.B. Ass'y	1	04	BA04433A	Bias Oscillator P.C.B. Ass'y	1
05	BA04511A	Logic P.C.B. Ass'y	1	05	BA04415A	Logic P.C.B. Ass'y	1
06	0B08720A	Plastic Rivet	3	06	0B08720A	Plastic Rivet	3
07	BA04360A	Main P.C.B. Ass'y (U.S.A. & Canada)	1	07	BA04360A	Main P.C.B. Ass'y (U.S.A. & Canada)	1
	BA04359A	Main P.C.B. Ass'y (Japan)	1		BA04359A	Main P.C.B. Ass'y (Japan)	1
	BA04361A	Main P.C.B. Ass'y (220V Class 2)	1		BA04361A	Main P.C.B. Ass'y (220V Class 2)	1
	BA04362A	Main P.C.B. Ass'y (UK & Australia)	1		BA04362A	Main P.C.B. Ass'y (UK & Australia)	1
	BA04363A	Main P.C.B. Ass'y (Others)	1		BA04363A	Main P.C.B. Ass'y (Others)	1
08	HA04070A	Rear Panel Ass'y (U.S.A. & Canada)	1	08	HA04070A	Rear Panel Ass'y (U.S.A. & Canada)	1
	HA04071A	Rear Panel Ass'y (Japan)	1		HA04071A	Rear Panel Ass'y (Japan)	1
	HA04074A	Rear Panel Ass'y (220V Class 2)	1		HA04074A	Rear Panel Ass'y (220V Class 2)	1
	HA04069A	Rear Panel Ass'y (UK)	1		HA04069A	Rear Panel Ass'y (UK)	1
	HA04073A	Rear Panel Ass'y (Australia)	1		HA04073A	Rear Panel Ass'y (Australia)	1
	HA04072A	Rear Panel Ass'y (Others)	1		HA04072A	Rear Panel Ass'y (Others)	1
*09	0M03700A	Earth Mark Label	1	*09	0M03700A	Earth Mark Label	1
L01	0E00502A	Screw M3x5 Philips Pan Head	2	L01	0E00502A	Screw M3x5 Philips Pan Head	2
*L02	0E00857A	BT Screw M3x6 Philips Binding Head	8	*L02	0E00857A	BT Screw M3x6 Philips Binding Head	8
L03	0E00860A	BT Screw M3x6 Philips Binding Head (Black Chromate)	5	L03	0E00860A	BT Screw M3x6 Philips Binding Head (Black Chromate)	5
*L04	0E00037A	Earth Lug B-5	1	*L04	0E00037A	Earth Lug B-5	1
L05	0E00868A	BT Screw M3x8 Philips Binding Head	2	L05	0E00868A	BT Screw M3x8 Philips Binding Head	2
L06	0E00172A	Washer 3mm Toothed Lock	2	L06	0E00172A	Washer 3mm Toothed Lock	2
L07	0E00896A	Screw M3x6 Philips Binding Head (Chromate)	2	L07	0E00896A	Screw M3x6 Philips Binding Head (Chromate)	2
		*: Depends on the versions.				*: Depends on the versions.	
				C01	**CA08109B**	**Flywheel Holder Ass'y** Serial No.: A12001001 –	**1**
				01	0C08013I	Flywheel Holder	1
				02	BA04126A	Control P.C.B. Ass'y	1
				03	CA08118B	Capstan Motor Ass'y	1
				L01	0E00226A	Screw M2.6x4 Philips Pan Head	3
				L02	0E00834A	BT Screw M3x5 Philips Pan Head	1
				L03	0C08068C	Thrust Screw	2
				L04	0C03857A	Lock Nut	2

8.10. Sub Mechanism Chassis Ass'y (C02)

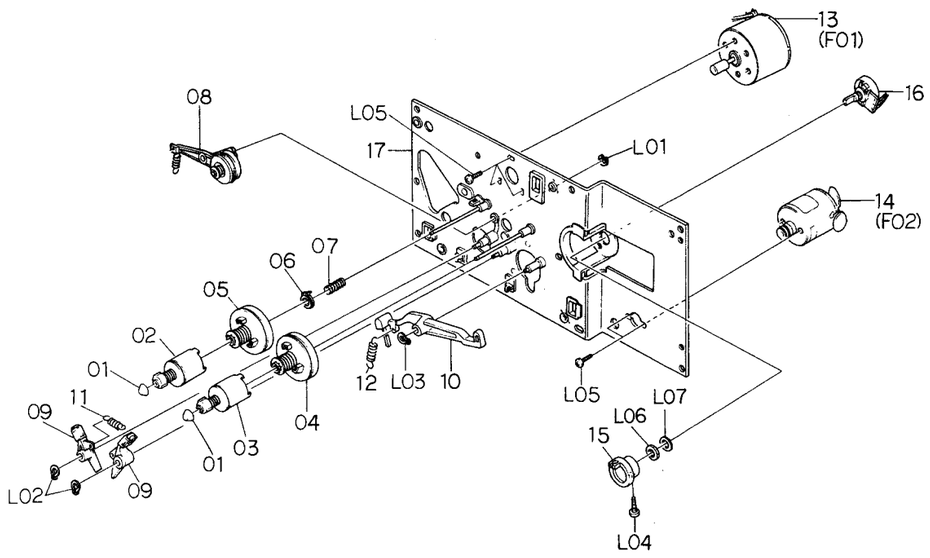


Fig. 8.10.1 Serial No.: A12002626 –

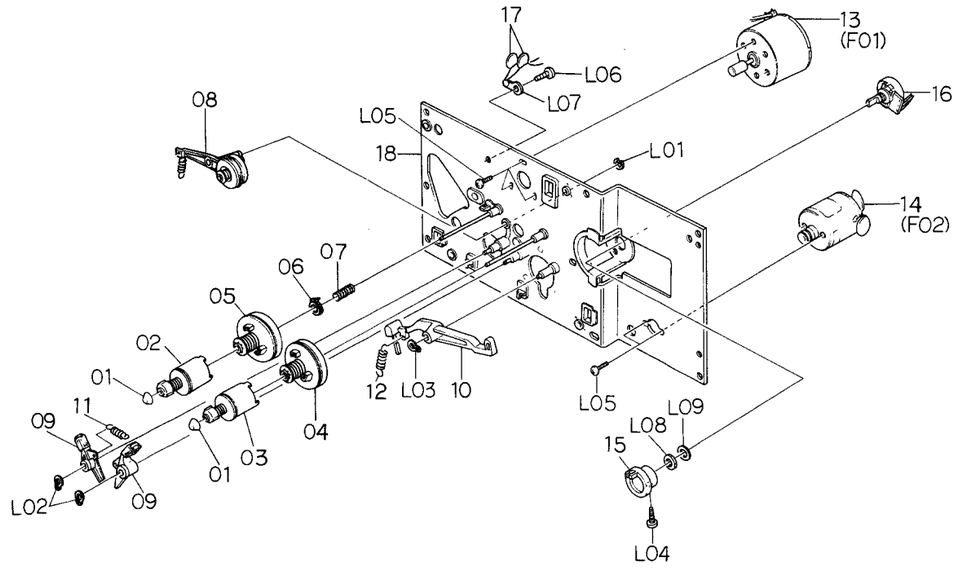


Fig. 8.10.2 Serial Nos.: A12001001 – A12002625

Schematic Ref. No.	Part No.	Description	Q'ty
C02	CA08315A	Sub Mechanism Chassis Ass'y Serial No.: A12002626 –	1
01	0C08039B	Reel Hub Head	2
02	CA08197A	Reel Hub B Supply Ass'y	1
03	CA08038B	Reel Hub B Take-up Ass'y	1
04	CA08037A	Reel Hub Take-up Ass'y	1
05	CA08064A	Reel Hub Supply Ass'y	1
06	CA08039A	Back Tension Ass'y	1
07	0C08269A	Back Tension Spring	1
08	CA08193A	Idler Arm Ass'y	1
09	CA08042A	Brake Arm Ass'y	2
10	0C08030C	Brake Drive Arm	1
11	0C08129A	Brake Arm Spring	1
12	0C08128A	Brake Drive Arm Spring	1
13	CA08242A	Reel Motor Ass'y	1
14	CA08124A	Control Motor Ass'y	1
15	0C08053B	Volume Coupler	1
16	0B07240A	Volume Control 10K (B)	1
17	CA08194A	Sub Chassis Ass'y	1
L01	0E00698A	E-Ring 2.5mm	1
L02	0E00837A	Stopper Ring 3mm	2
L03	0E00838A	Stopper Ring 4mm	1
L04	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
L05	0E00226A	Screw M2.6x4 Philips Pan Head	5
L06	–	Volume Nut	(1)
L07	–	Volume Wahser	(1)

Schematic Ref. No.	Part No.	Description	Q'ty
C02	CA08232A	Sub Mechanism Chassis Ass'y Serial Nos.: A12001001 – A12002625	1
01	0C08039B	Reel Hub Head	2
02	CA08197A	Reel Hub B Supply Ass'y	1
03	CA08038B	Reel Hub B Take-up Ass'y	1
04	CA08037A	Reel Hub Take-up Ass'y	1
05	CA08064A	Reel Hub Supply Ass'y	1
06	CA08039A	Back Tension Ass'y	1
07	0C08269A	Back Tension Spring	1
08	CA08193A	Idler Arm Ass'y	1
09	CA08042A	Brake Arm Ass'y	2
10	0C08030C	Brake Drive Arm	1
11	0C08129A	Brake Arm Spring	1
12	0C08128A	Brake Drive Arm Spring	1
13	CA08117B	Reel Motor Ass'y	1
14	CA08124A	Control Motor Ass'y	1
15	0C08053B	Volume Coupler	1
16	0B07240A	Volume Control 10K (B)	1
17	0B09290A	Ceramic Capacitor 0.01μ 50V Z	2
18	CA08194A	Sub Chassis Ass'y	1
L01	0E00698A	E-Ring 2.5mm	1
L02	0E00837A	Stopper Ring 3mm	2
L03	0E00838A	Stopper Ring 4mm	1
L04	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
L05	0E00226A	Screw M2.6x4 Philips Pan Head	5
L06	0E00843A	BT Screw M2.6x4 Philips Pan Head	1
L07	0E00037A	Earth Lug B-5	1
L08	–	Volume Nut	(1)
L09	–	Volume Washer	(1)

Schematic Ref. No.	Part No.	Description	Q'ty
C03	CA08271A	Main Mechanism Chassis Ass'y Serial No.: A12001001 –	1
01	CA08141A	Cassette Case Holder L Ass'y	1
02	CA08022A	Cassette Case Holder R Ass'y	1
03	CA08111A	Cassette Case Ass'y	1
04	CA08302A	Head Mount Base Ass'y	1
05	0C08121A	Take-up Pressure Roller Spring	1
06	0C08250A	Supply Pressure Roller Spring	1
07	CA08053B	Supply Pressure Roller Ass'y	1
08	0C08122B	Supply Pressure Roller Thrust Spring	1
09	CA08079B	Take-up Pressure Roller Ass'y	1
10	0C08183B	Take-up Pressure Roller Thrust Spring	1
11	0C08182A	Pressure Roller Drive Bar	1
12	CA08309A	Head Base Ass'y C	1
13	0C08086B	Head Base Roller	3
14	0C08050B	Record Sensor	1
15	0C08051E	Cassette Hold Arm	1
16	0C08120A	Cassette Hold Arm Spring	1
17	CA08196A	Back Tension Arm Ass'y	1
18	0C08254A	Sleeve	1
19	CA08027A	Head Base Drive Arm Ass'y	1
20	0C08143C	Head Base Drive Arm Spring	1
21	CA08026A	Pressure Roller Drive Arm Ass'y	1
22	0C08071D	Counter Reset Arm	1
23	0C08124B	Eject Linkage Wire	1
24	0C08057E	Eject Arm	1
25	0C08078B	Arm Shaft	1
26	CA08237A	Auto Shut-off Ass'y	1
27	CA08020A	Counter Ass'y	1

Schematic Ref. No.	Part No.	Description	Q'ty
28	0C08097B	Counter Belt A	1
29	0C08067C	Eject Stopper	1
30	0C08134C	Eject Stopper Spring	1
31	0C08119A	Record Protector	1
32	0C08194C	Damper Lock Arm	1
33	0C08153A	Damper Arm Spring Tube	1
34	0C08116A	Record Arm Spring	1
35	CA08030A	Pneumatic Damper Ass'y	1
36	CA08023A	Supply Capstan Flange Ass'y	1
37	CA08024A	Take-up Capstan Flange Ass'y	1
38	0C08186A	Cam Drive Gear	1
39	0C08029H	Control Cam	1
40	0C08152A	Counter-Load Arm Spring Tube	1
41	0C08117A	Counter-Load Arm Spring	1
42	CA08028A	Counter-Load Arm Ass'y	1
43	CA08183A	Main Chassis Ass'y	1
L01	0E00837A	Stopper Ring 3mm	11
L02	0E00834A	BT Screw M3x30 Philips Pan Head	2
L03	0E00831A	BT Screw M3x10 Philips Pan Head	4
L04	0E00254A	Washer 3.1mm Plastics	2
L05	0E00222A	E-Ring 2mm	2
L06	0E00839A	Stopper Ring 2.5mm	1
L07	0E00876A	BT Screw M2.6x8 Philips Pan Head	11
L08	0C08060B	Height Adjustment Nut	2
L09	0E00142A	Washer 2.6mm	2
L10	0E00879A	BT Screw M2x15 Philips Pan Head	1
L11	0E00838A	Stopper Ring 4mm	3
L12	0E00846A	BT Screw M3x8 Philips Pan Head	3
L13	0E00895A	Earth Lug 3mm	2
L14	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
L15	0C08255A	Washer 2.6mm	1

8.11. Main Mechanism Chassis Ass'y (C03)

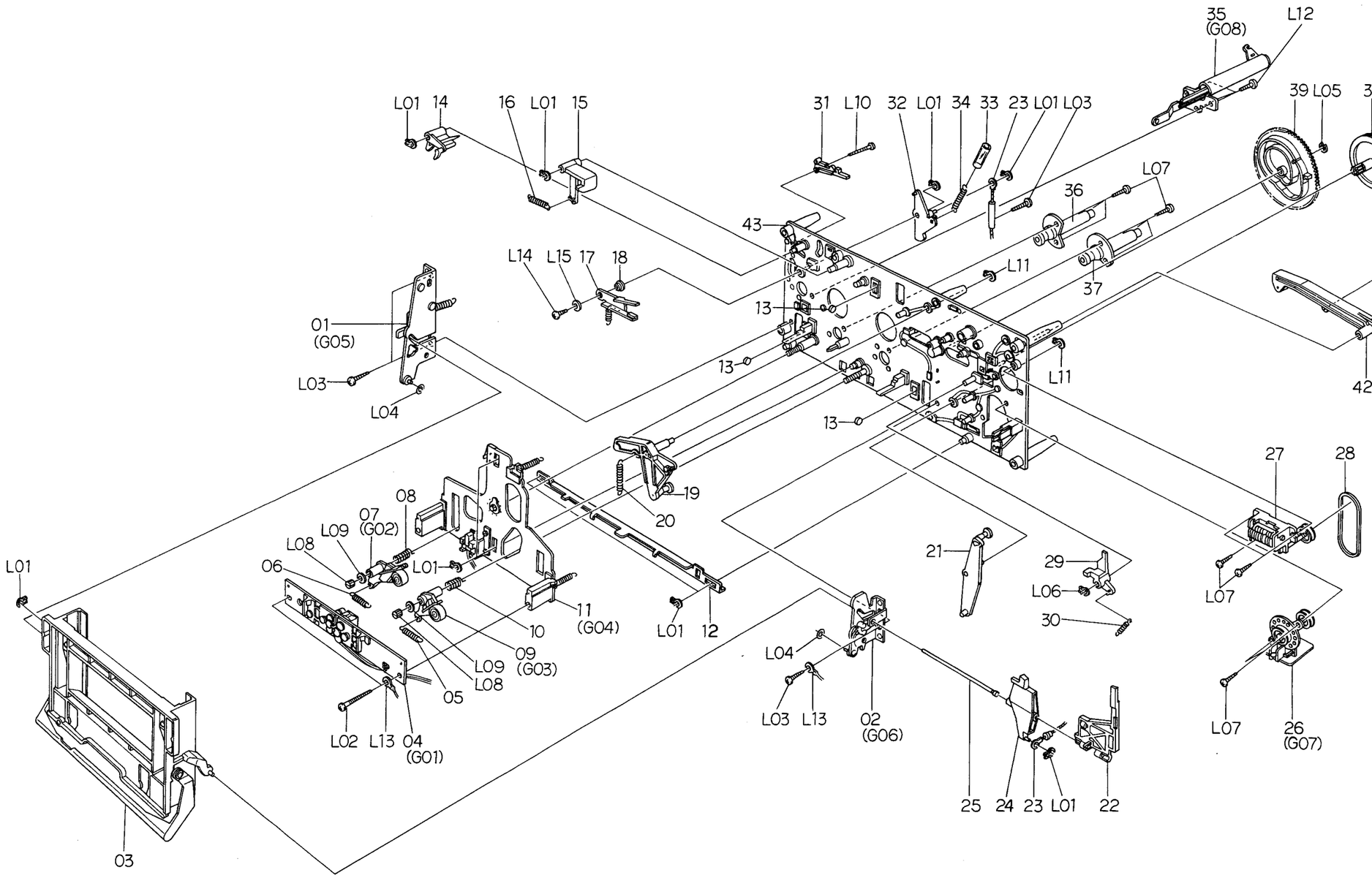


Fig. 8.11

8.12. Rear Panel Ass'y (D01)

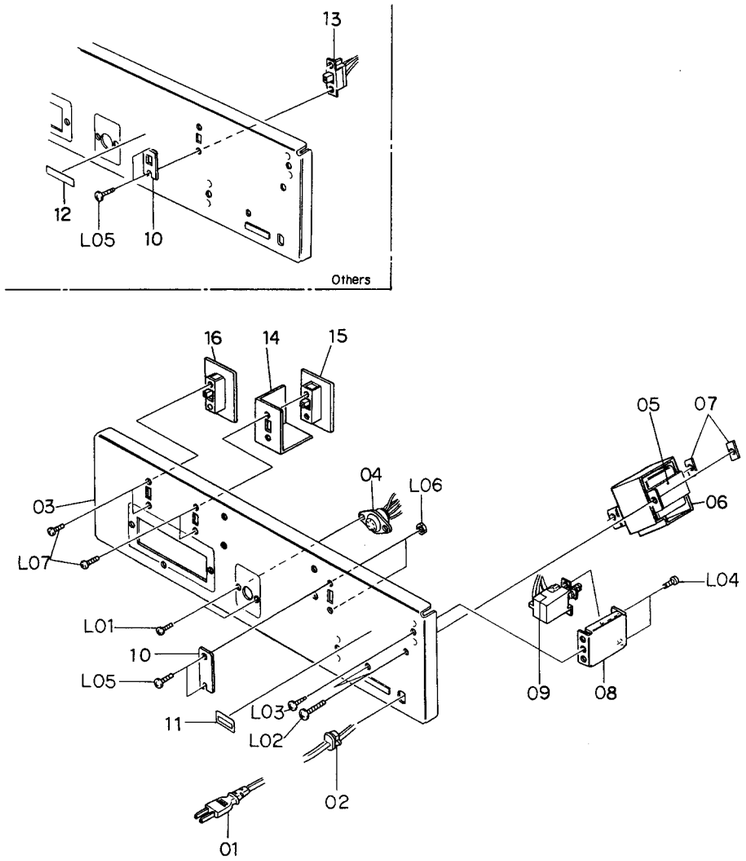


Fig. 8.12

Schematic Ref. No.	Part No.	Description	Q'ty
D01	**HA04070A**	**Rear Panel Ass'y (U.S.A. & Canada)**	**1**
	HA04071A	**Rear Panel Ass'y (Japan)**	**1**
	HA04074A	**Rear Panel Ass'y (220V Class 2)**	**1**
	HA04069A	**Rear Panel Ass'y (UK)**	**1**
	HA04073A	**Rear Panel Ass'y (Australia)**	**1**
	HA04072A	**Rear Panel Ass'y (Others)**	**1**
		Serial No.: A12001001 –	
01	0B08533A	Power Cord (U.S.A., Canada & Others)	1
	0B08219U	Power Cord (Japan)	1
	0B08093U	Power Cord (220V Class 2)	1
	0B08348A	Power Cord (UK)	1
	0B08666A	Power Cord (Australia)	1
02	0B08037U	Cord Bushing (U.S.A., Canada, Japan, 220V Class 2 & Others)	1
	0B08351A	Cord Bushing 4K-4 (UK)	1
	0B08325U	Cord Bushing (Australia)	1
03	0H03938B	Rear Panel	1
04	0B08687A	6P DIN Socket	1
05	0B06652A	Power Transformer (U.S.A. & Canada)	1
	0B06653A	Power Transformer (Japan)	1
	0B06655A	Power Transformer (220V Class 2 & UK)	1
	0B06656A	Power Transformer (Australia)	1
	0B06654A	Power Transformer (Others)	1
06	0J04426B	Power Transformer Shield Cover	1
07	0C01162B	Bolt Receptacle Plate	1
08	0J04076A	Power Switch Holder	1
09	0B07299A	Power Switch (U.S.A. & Canada)	1
	0B07301A	Power Switch (Japan)	1
	0B07252A	Power Switch (220V Class 2, UK, Australia & Others)	1
10	0J03663C	Switch Cover (U.S.A., Canada, Japan, 220V Class 2, UK & Australia)	1
	0M03946A	Voltage Selector Lock Plate C (Others)	1
11	0M03551B	Pass Label	1
12	0M03794A	Voltage Label 100V (Japan)	1
	0M03796A	Voltage Label 220V (220V Class 2)	1
	0M03797A	Voltage Label 240V (UK & Australia)	1
	0M03955A	Voltage Label 120V/220-240V (Others)	1
13	0B07092U	Voltage Selector (Others)	1
14	0J04389A	Headphone Switch Shield Plate	1
15	BA04420A	Headphone Switch P.C.B. Ass'y	1
16	BA04402A	MPX Filter Switch P.C.B. Ass'y	1
–	0M03905A	UL Label	1
–	0M04214A	Serial Number Plate	1
–	0M04097B	Fuse Caution Label (U.S.A. & Canada)	1
–	0M03844B	Power Cord Label (UK)	1
L01	0E00714A	Screw M2.6x6 Philips Binding Head (Bronze)	2
L02	0E00756A	Screw M4x8 Philips Binding Head (Bronze)	2
L03	0E00860A	BT Screw M3x6 Philips Binding Head (Black Chromate)	1
L04	0E00502A	Screw M3x5 Philips Pan Head	2
L05	0E00593A	Screw M3x6 Philips Binding Head (Bronze)	2
L06	0E00507A	Nut Hex. M3	2
L07	0E00945A	Screw M2.6x4 Philips Binding Head (Black Chromate)	4
–	0J03644A	Chobert Rivet	2
E01	**CA08118B**	**Capstan Motor Ass'y**	**1**
		Serial No.: A12001001 –	
01	0C08219A	Capstan Motor	1
02	0C08212C	Motor Pulley	1
03	0M04077A	Motor Seal	1
F01	**CA08242A**	**Reel Motor Ass'y**	**1**
		Serial No.: A12002626 –	
01	0C08272A	Reel Motor	1
02	0C08063F	Reel Motor Pulley	1
03	0B09290A	Ceramic Capacitor 0.01μ 50V Z	1
F01	**CA08117B**	**Reel Motor Ass'y**	**1**
		Serial Nos.: A12001001 – A12002625	
01	0C08218A	Reel Motor	1
02	0C08063F	Reel Motor Pulley	1
F02	**CA08124A**	**Control Motor Ass'y**	**1**
		Serial No.: A12001001 –	
01	0C08137A	Control Motor	1
02	0C08064A	Control Motor Pulley	1
03	0B09292A	Ceramic Capacitor 0.1μ 50V Z	2
04	0M03985A	Control Motor Label	1
05	0M03988A	Motor Seal B	1
G01	**CA08302A**	**Head Mount Base Ass'y**	**1**
		Serial No.: A12001001 –	
01	0C08028C	Head Height Adjustment Gear	1
02	0C08027E	Head Height Adjustment Screw	2
03	0C08026D	Azimuth Alignment Screw	1
04	0C08161B	Spring Stopper	1
05	0C08187B	Head Plate Spring	1
06	CA08083C	Head Mount Base Sub Ass'y	1
07	CA08137A	P-8L Playback Head Ass'y	1
08	CA08300A	R-8L Record Head Ass'y	1
G02	**CA08053B**	**Supply Pressure Roller Ass'y**	**1**
		Serial No.: A12001001 –	
01	0C08164G	Pressure Roller	1
02	0C08189C	Supply Tape Guide	1
03	CA08061A	Supply Pressure Roller Arm Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT Screw M2x8 Philips Pan Head	1

8.13. Capstan Motor Ass'y (E01)

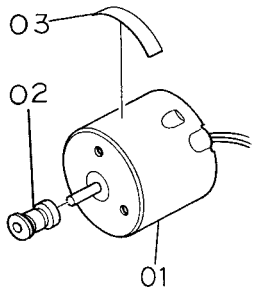


Fig. 8.13

8.14. Reel Motor Ass'y (F01)

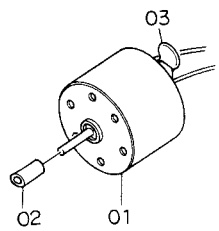


Fig. 8.14.1 Serial No.: A12002626 –

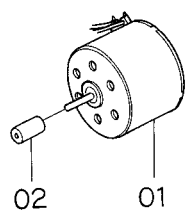


Fig. 8.14.2 Serial Nos.: A12001001 – A12002625

8.15. Control Motor Ass'y (F02)

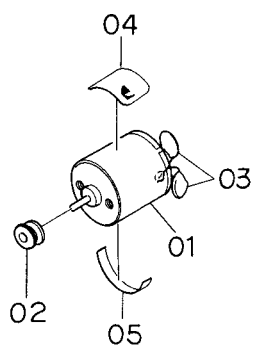


Fig. 8.15

8.16. Head Mount Base Ass'y (G01)

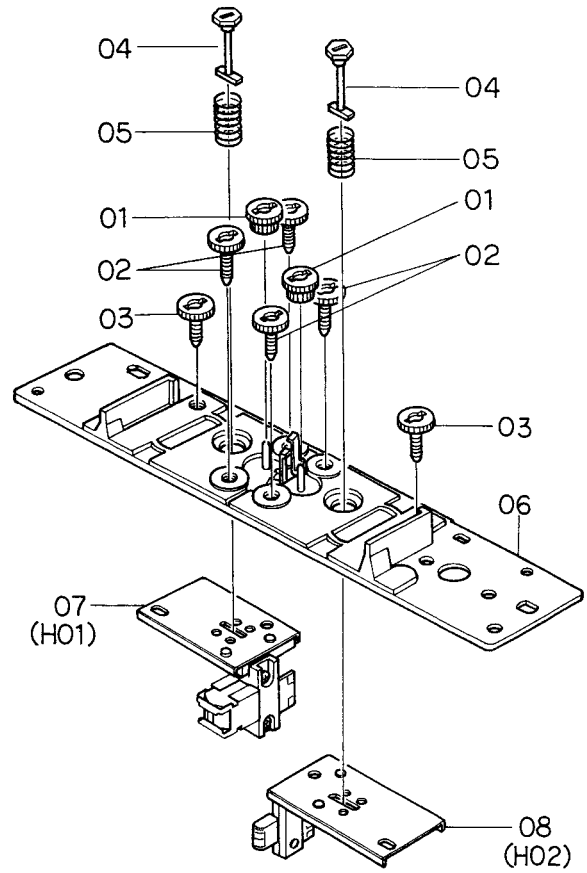


Fig. 8.16

8.17. Supply Pressure Roller Ass'y (G02)

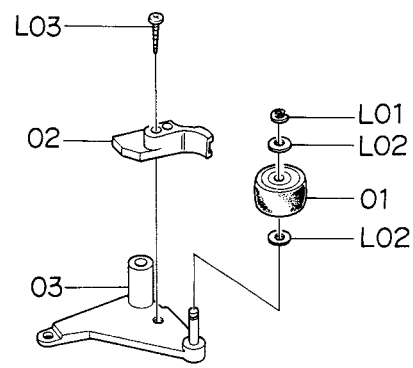


Fig. 8.17

8.18. Take-up Pressure Roller Ass'y (G03)

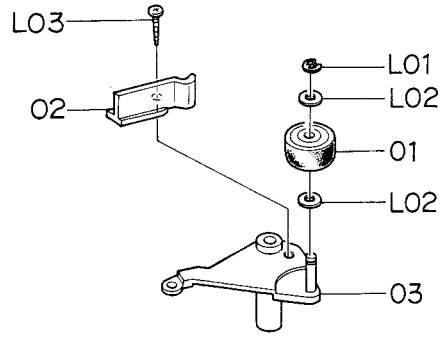


Fig. 8.18

8.19. Head Base Ass'y C (G04)

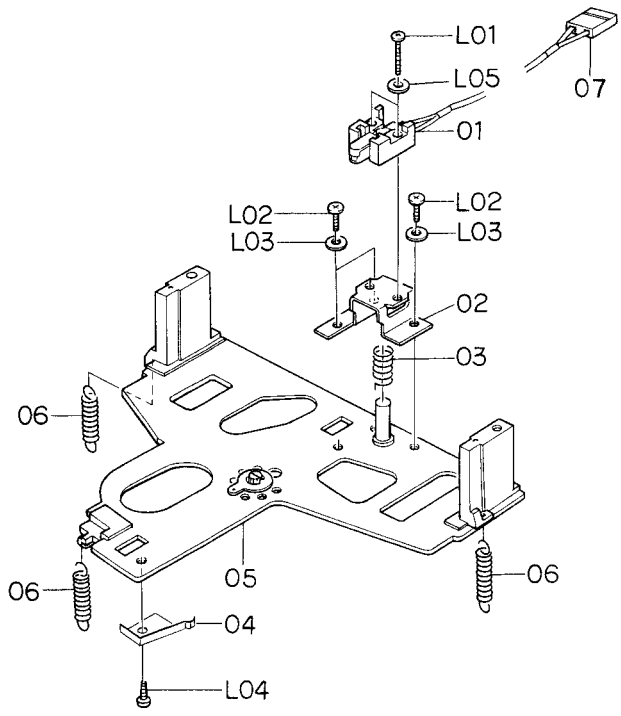


Fig. 8.19

8.20. Cassette Case Holder L Ass'y (G05)

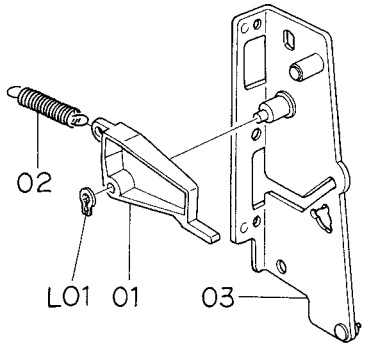


Fig. 8.20

8.21. Cassette Case Holder R Ass'y (G06)

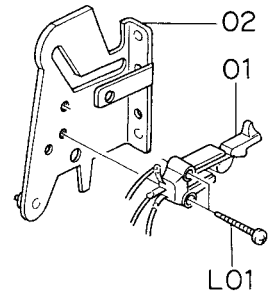


Fig. 8.21

8.22. Auto Shut-off Ass'y (G07)

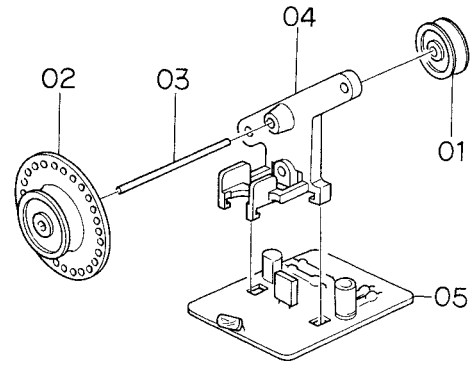


Fig. 8.22

8.23. Pneumatic Damper Ass'y (G08)

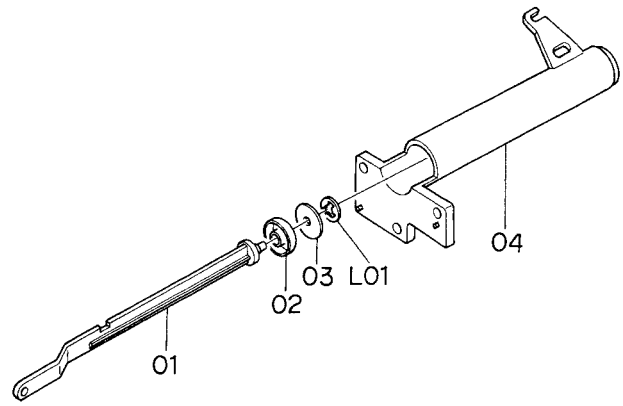


Fig. 8.23

8.24. P-8L Playback Head Ass'y (H01)

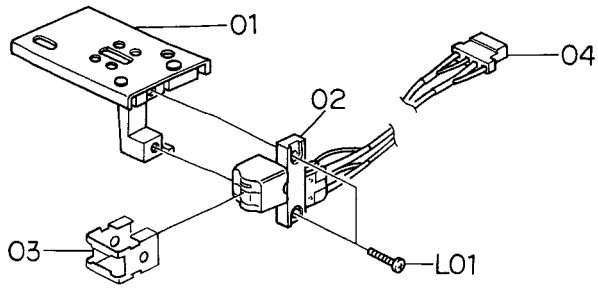


Fig. 8.24

8.25. R-8L Record Head Ass'y (H02)

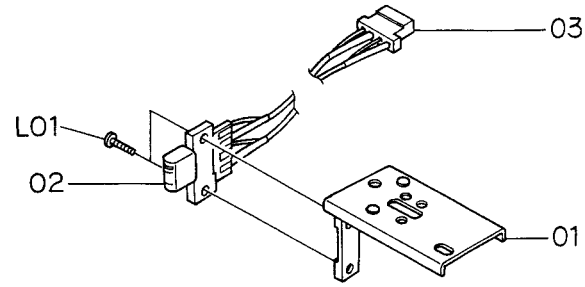


Fig. 8.25

Schematic Ref. No.	Part No.	Description	Q'ty
G03	**CA08079B**	**Take-up Pressure Roller Ass'y** Serial No.: A12001001 –	**1**
01	0C08164G	Pressure Roller	1
02	0C08181C	Take-up Tape Guide	1
03	CA08073B	Take-up Pressure Roller Arm Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT Screw M2x8 Philips Pan Head	1
G04	**CA08309A**	**Head Base Ass'y C** Serial No.: A12001001 –	**1**
01	GA02017A	E-8L Erase Head	1
02	0C08158D	EH Hold Plate	1
03	0C08166A	EH Hold Plate Spring	1
04	0C08174D	Cassette Hold Spring	1
05	CA08003Q	Head Base Ass'y	1
06	0C08175A	Head Base L Spring	3
07	0B08891A	2P-H Connector	1
L01	0E00951A	Screw M1.7x7 Philips Pan Head	2
L02	0E00909A	Screw M2x6 Philips Pan Head	3
L03	0E00117A	Washer 2mm	3
L04	0E00853A	BT Screw M2x3 Philips Pan Head	1
L05	0E00952A	Washer 1.7mm	2
G05	**CA08141A**	**Cassette Case Holder L Ass'y** Serial No.: A12001001 –	**1**
01	0C08073C	Lid Arm A	1
02	0C08114A	Lid Arm Spring	1
03	CA08090F	Cassette Case Holder L Sub Ass'y	1
L01	0E00837A	Stopper Ring 3mm	1
G06	**CA08022A**	**Cassette Case Holder R Ass'y** Serial No.: A12001001 –	**1**
01	0C08133A	Eject Sensor	1
02	CA08044A	Cassette Case Holder R Sub Ass'y	1
L01	0E00840A	BT Screw M2x8 Philips Pan Head	2

Schematic Ref. No.	Part No.	Description	Q'ty
G07	**CA08237A**	**Auto Shut-off Ass'y** Serial No.: A12001001 –	**1**
01	0C08047A	Shut-off Pulley A	1
02	0C08206B	Shut-off Pulley B	1
03	0C08088B	Shut-off Pulley Shaft	1
04	0C08207B	Shut-off Pulley Holder	1
05	BA04070A	Shut-off P.C.B. Ass'y	1
G08	**CA08030A**	**Pneumatic Damper Ass'y** Serial No.: A12001001 –	**1**
01	0C08058C	Damper Piston	1
02	0C08102C	Damper Ring	1
03	0C08010C	Damper Plate	1
04	0C08059D	Sylinder	1
L01	0E00874A	Stopper Ring CS 2mm	1
H01	**CA08137A**	**P-8L Playback Head Ass'y** Serial No.: A12001001 –	**1**
01	CA08307A	Playback Head Plate Ass'y	1
02	GA02034A	P-8L Playback Head	1
03	0C08169D	Pad Lifter 54	1
04	0B08704C	4P-H Connector	1
L01	0E00886A	Screw M1.7x6.5 Philips Pan Head	2
H02	**CA08300A**	**R-8L Record Head Ass'y** Serial No.: A12001001 –	**1**
01	CA08308B	Record Head Plate Ass'y	1
02	GA01050A	R-8L Record Head	1
03	0B08890A	4P-H Connector	1
L01	0E00887A	Screw M1.7x4 Philips Pan Head	1

9. OVERALL TIMING CHART

Mode	PLAYBACK			RECORD				
Control Button	Stop	Play	Stop	Rec	Rec/Play	Rec/Pause	Rec/Play	Stop
Tape		470ms 300ms	120ms 180ms		470ms 300ms	130ms 160ms	220ms 120ms	130ms 160ms
Output		300ms			300ms			
Bias					300ms			

Fig. 9

10. EQ. AMP. FREQUENCY RESPONSE

10.1. Playback Frequency Response

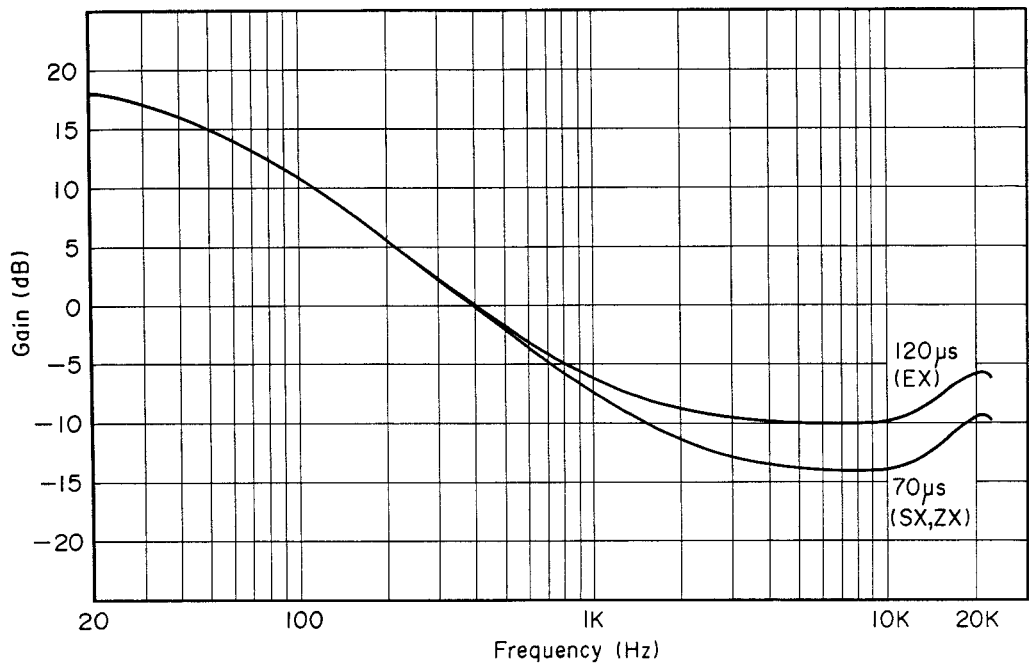


Fig. 10.1

10.2. Record Current Frequency Response

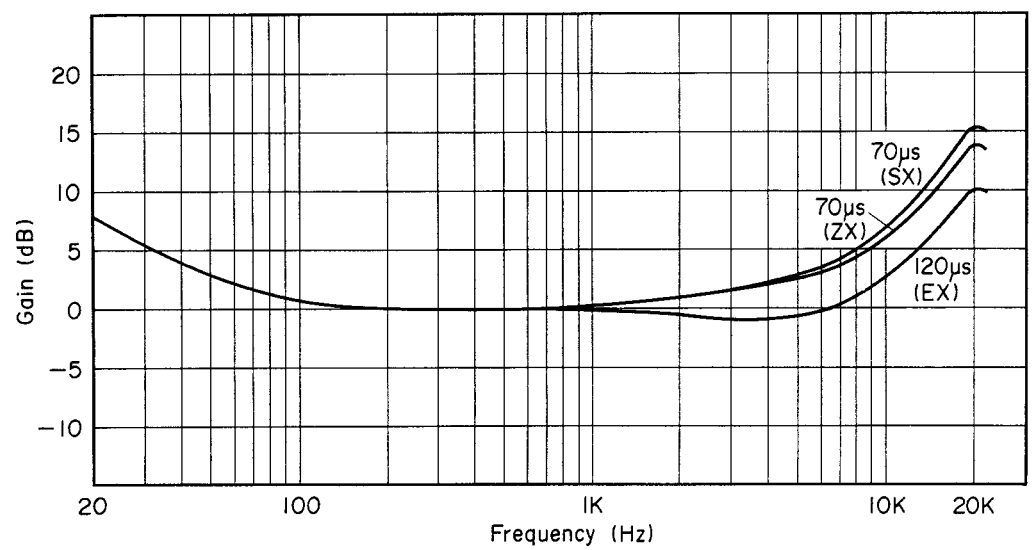


Fig. 10.2

11. WIRING DIAGRAM

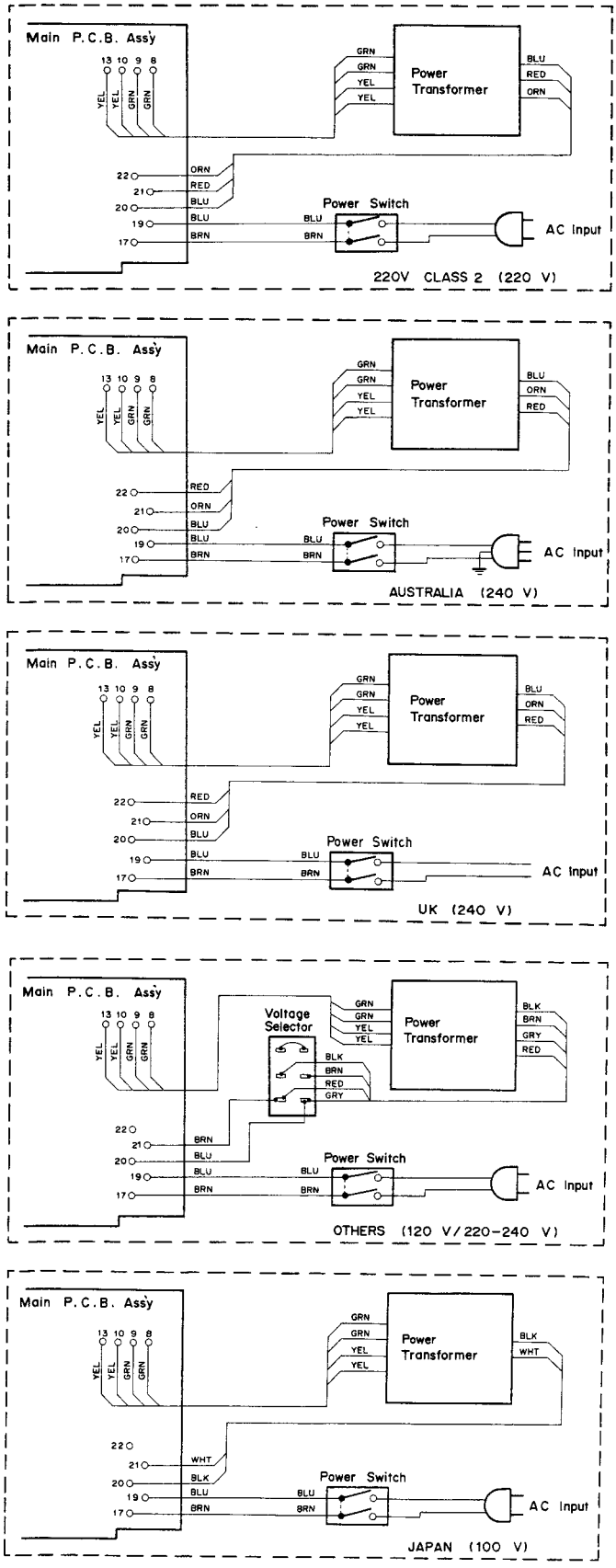


Fig. 11.1

Notes: 1. Table of wire colors

BLK	– Black
BLU	– Blue
ORN	– Orange
GRY	– Gray
GRN	– Green
RED	– Red
BRN	– Brown
YEL	– Yellow
WHT	– White
VIO	– Violet

2. Component side view of the P.C.B. is illustrated unless otherwise specified.

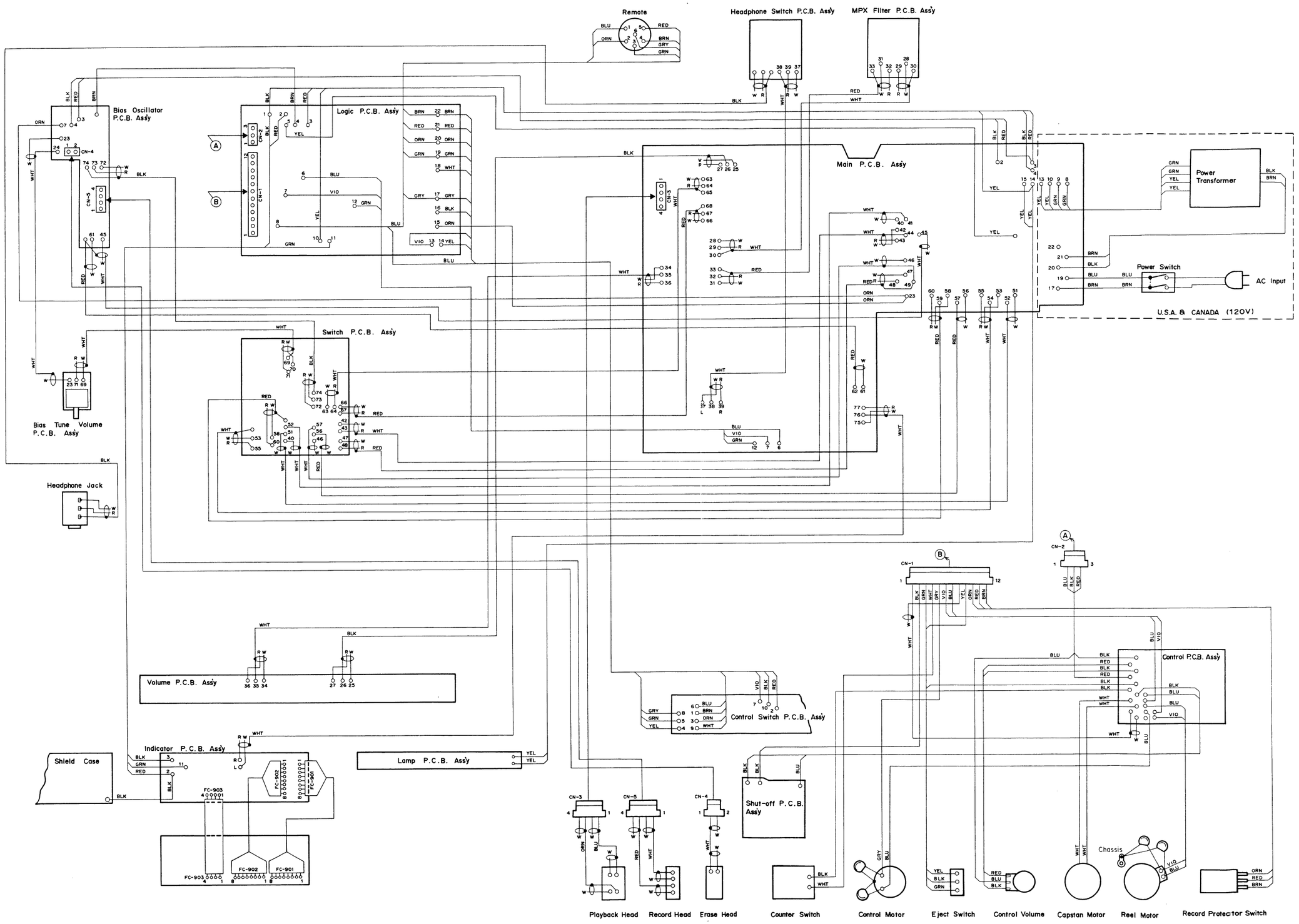

Remote
Headphone Switch P.C.B. Assy
MPX Filter P.C.B. Assy
Bias Oscillator P.C.B. Assy
Logic P.C.B. Assy
Main P.C.B. Assy
Power Transformer
Power Switch
AC Input
U.S.A. & CANADA (120V)
Switch P.C.B. Assy
Bias Tune Volume P.C.B. Assy
Headphone Jack
Volume P.C.B. Assy
Indicator P.C.B. Assy
Shield Case
Lamp P.C.B. Assy
Control Switch P.C.B. Assy
Shut-off P.C.B. Assy
Control P.C.B. Assy
Chassis
Playback Head
Record Head
Erase Head
Counter Switch
Control Motor
Eject Switch
Control Volume
Capstan Motor
Reel Motor
Record Protector Switch

Fig. 11.2

12. BLOCK DIAGRAMS

12.1. Amplifier Section

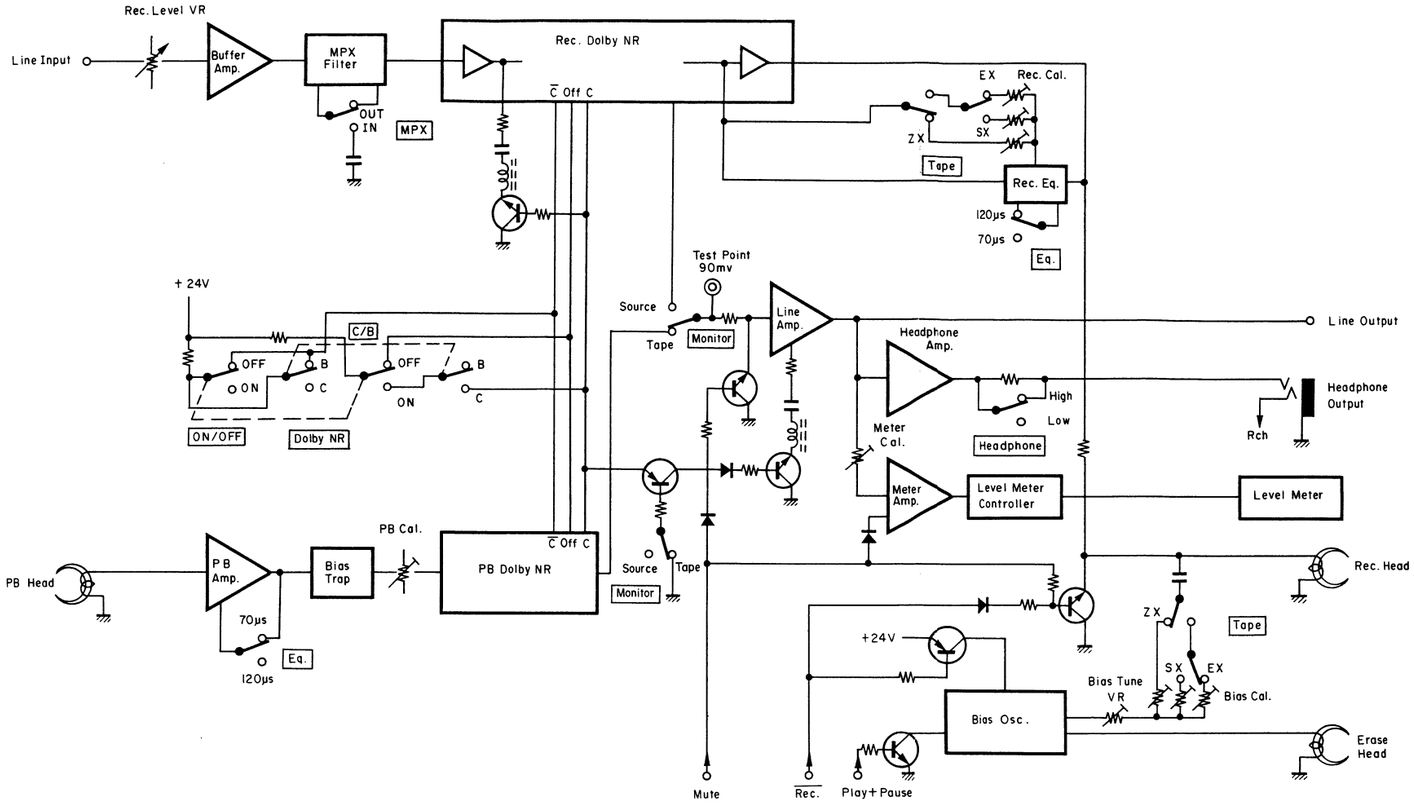


Fig. 12.1

12.2. Mechanism Control Section

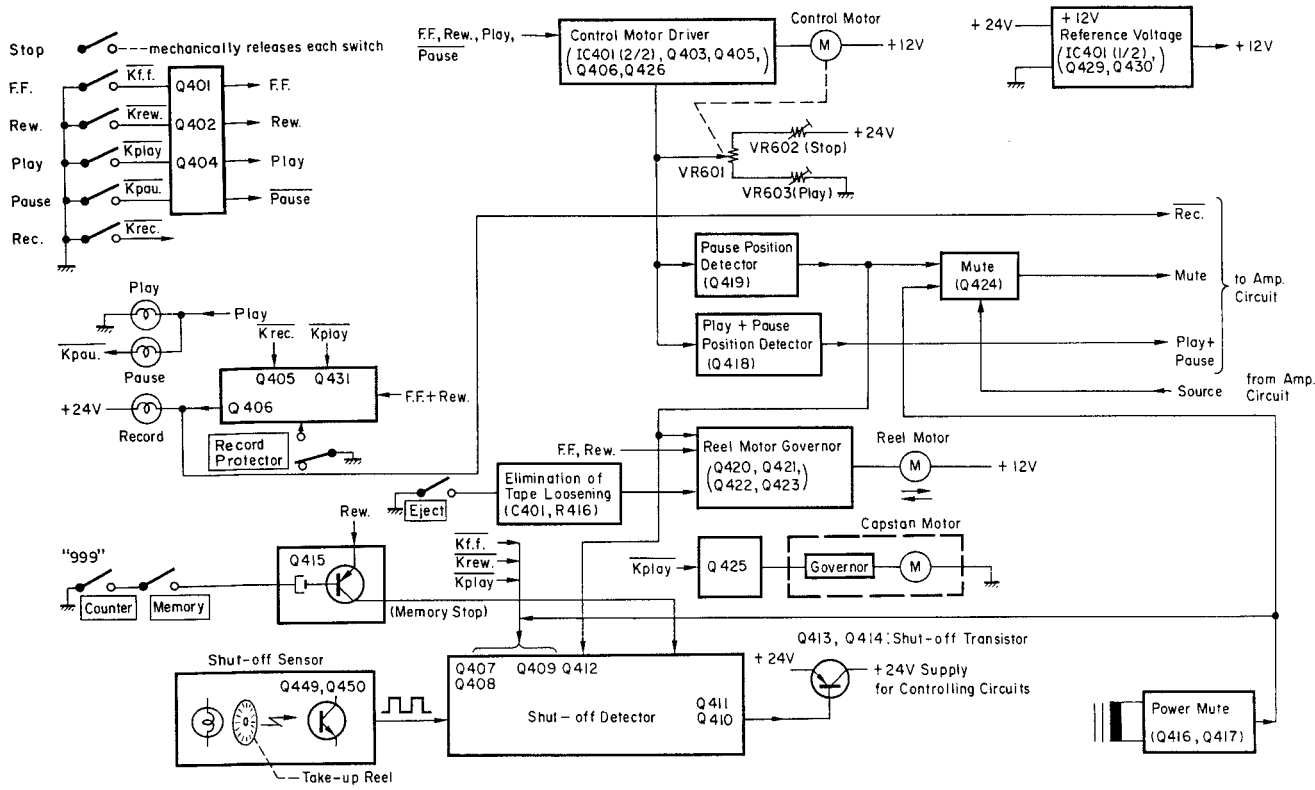


Fig. 12.2

13. SCHEMATIC DIAGRAMS

13.1. IC Block Diagrams

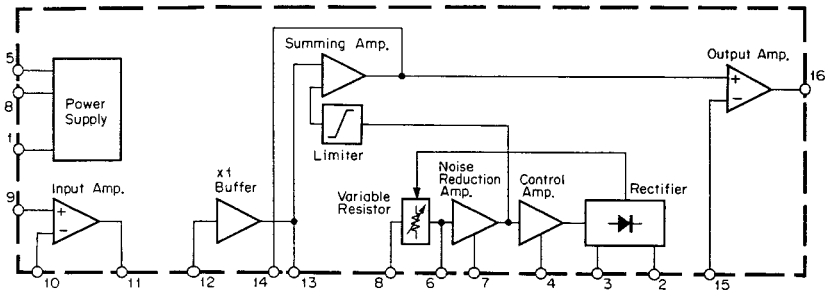


Fig. 13.1 Dolby NR IC μA7300PC

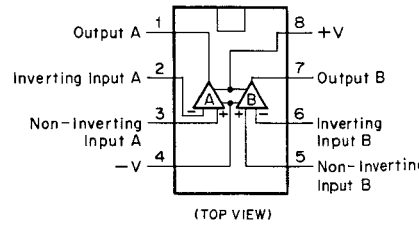


Fig. 13.2 Operational Amp. IC 4558

13.2. Attention to Servicemen

(1) Parts Replacement

Following parts shall be replaced with the specified ones. Refer to the parts list.

(a) Power Supply Circuit
- Power Cord
- Power Transformer T1
- Power Switch SW1

(b) Main P.C.B. Ass'y
- F401, 402
- M2, 3
- D401
- IC401
- R301, 303, 304, 306, 719, 720, 819, 820

(c) Logic P.C.B. Ass'y
- Q402, 413, 420, 421, 425, 427, 428, 429, 430
- R453, 470

(d) Control Switch P.C.B. Ass'y
- R610, 611, 612
- PL601, 602, 603

(e) Shut-off P.C.B. Ass'y
- R605
- PL407

(f) Lamp P.C.B. Ass'y
- PL001, 002

(g) Indicator P.C.B. Ass'y
- R901

(h) Bias Oscillator P.C.B. Ass'y
- R352, 353, 357, 358

(2) Insulation Check

Before returning the repaired N-482Z to a customer, check to insure that the exposed part is accurately insulated from the AC line by measuring the leakage current or the insulation resistance between them.

13.3. Mechanism Control Section

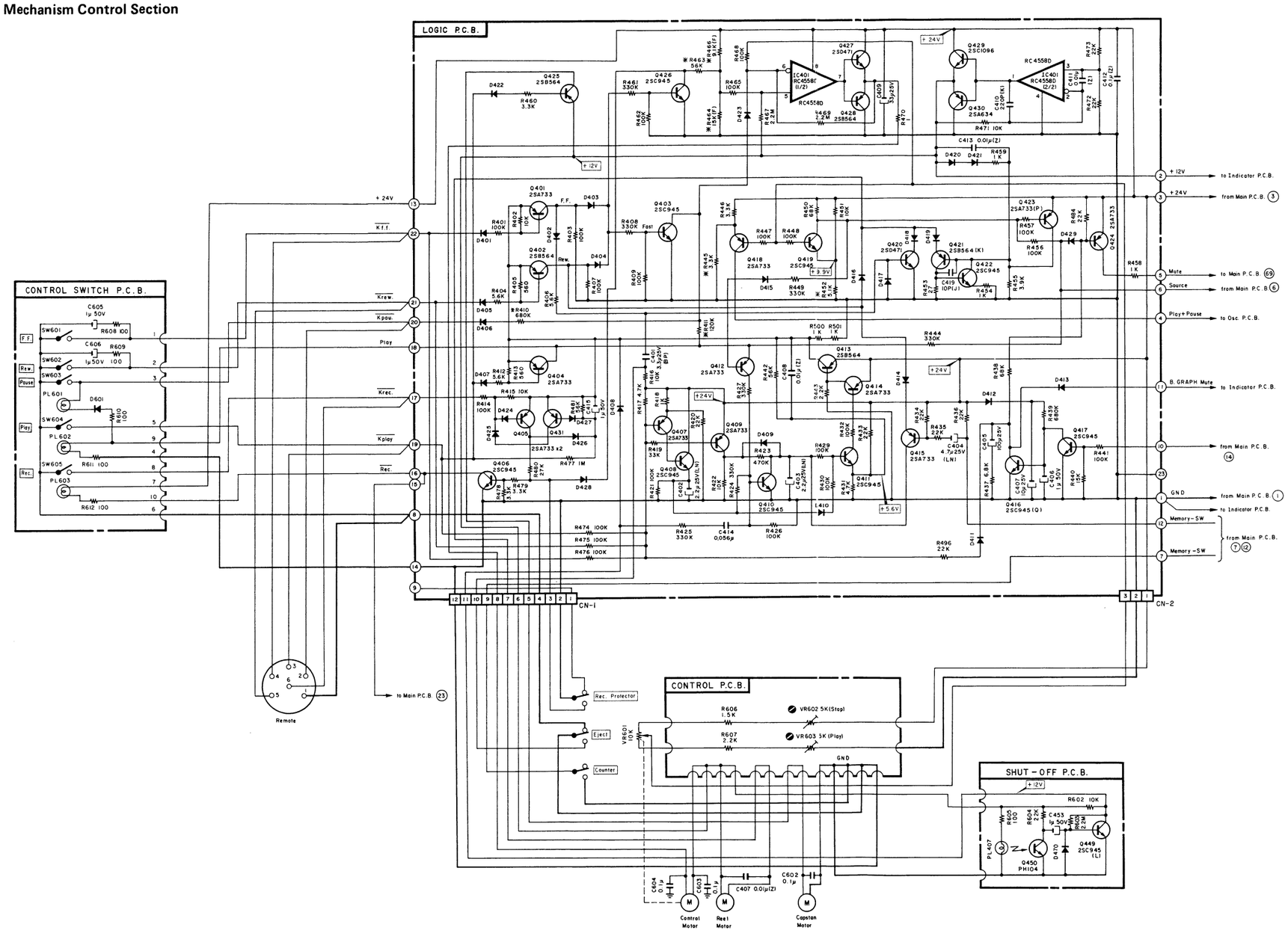


Fig. 13.3.1 Serial No.: A12002626 –

Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.

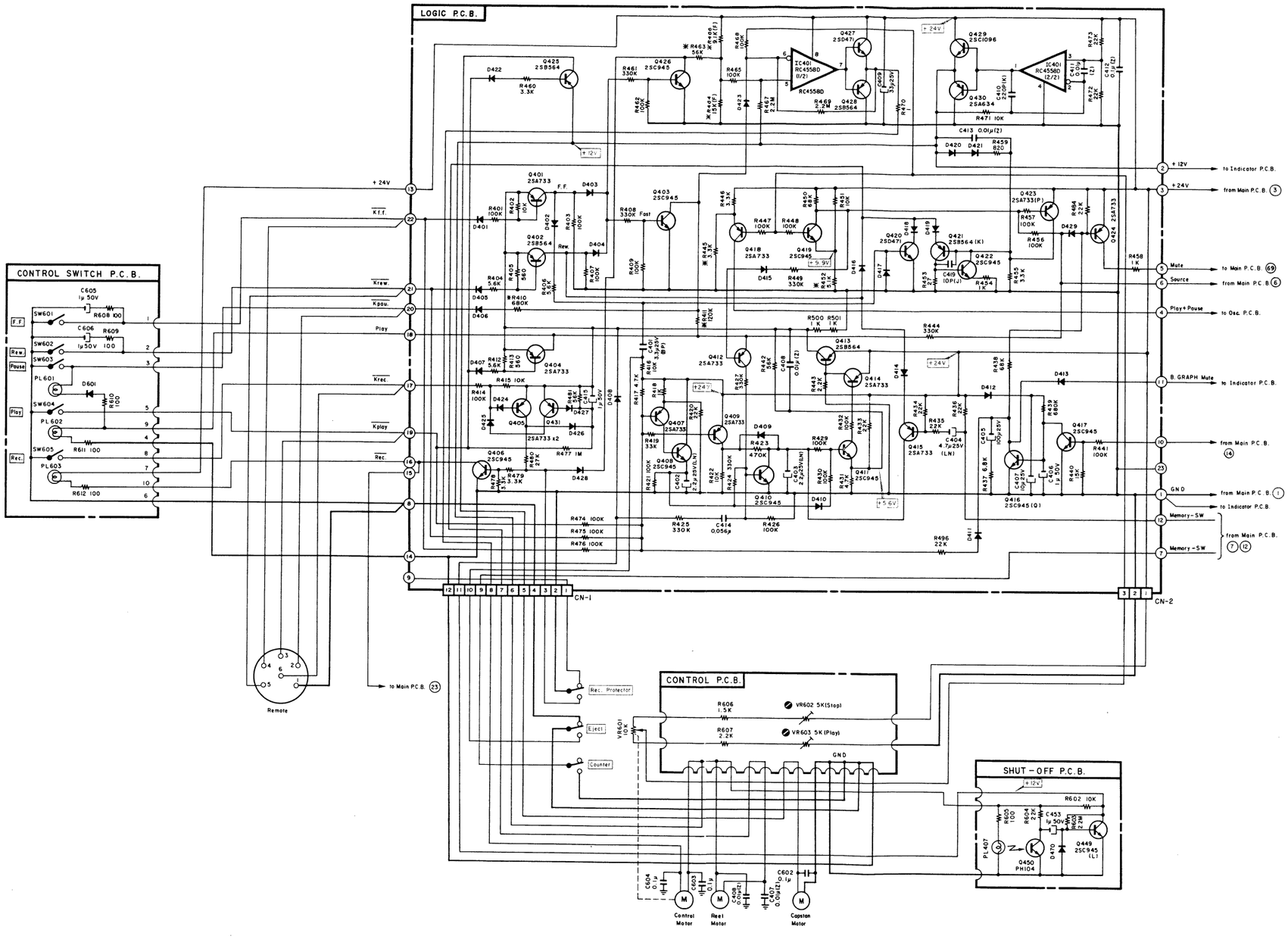


Fig. 13.3.2 Serial Nos.: A12001001 – A12002625

Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.

13.4. Amplifier Section

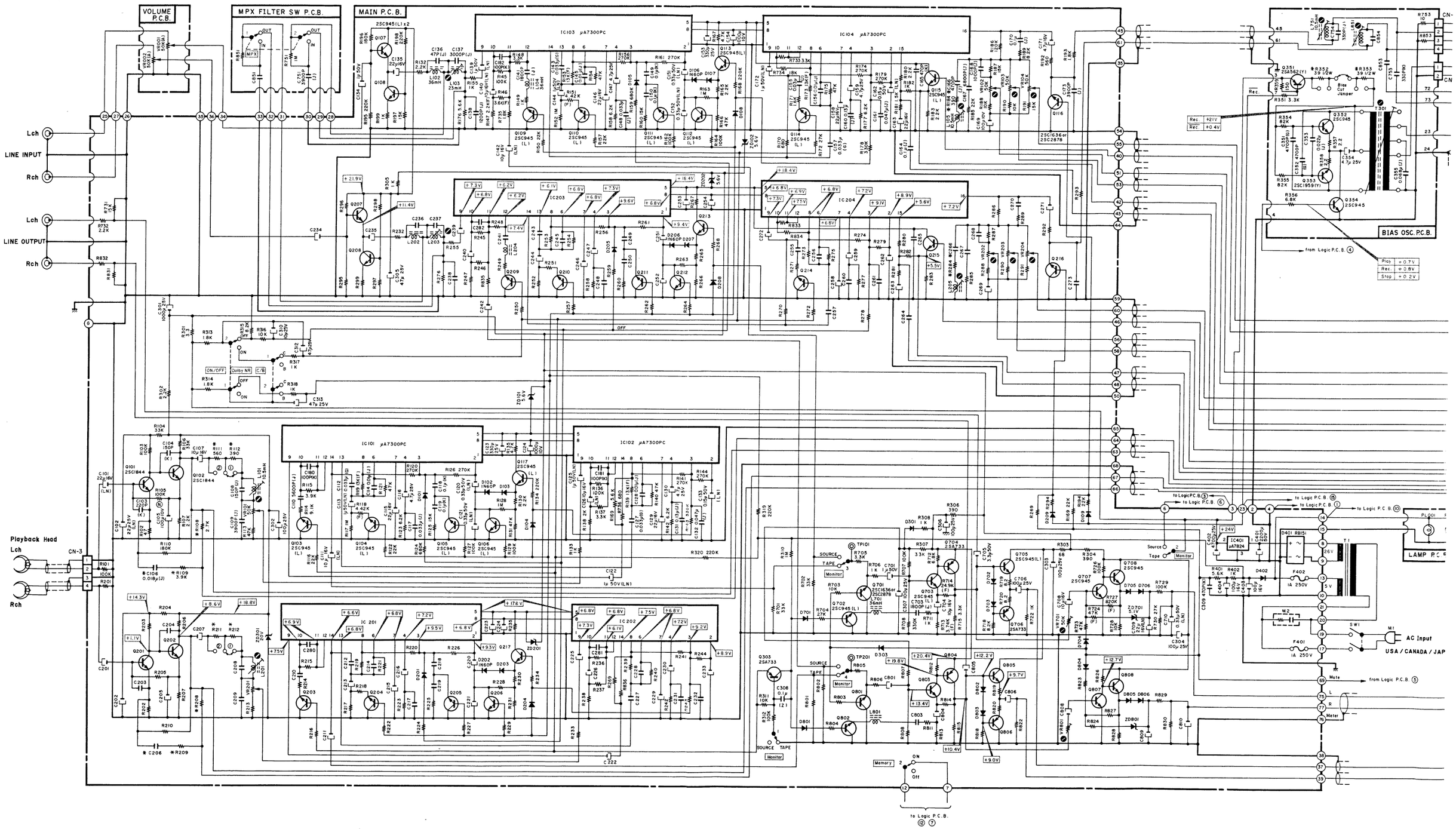
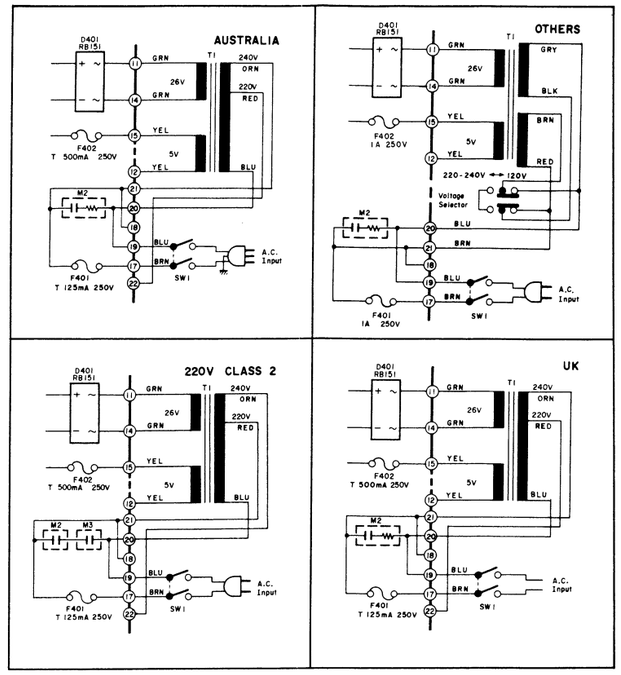


Fig. 13.4.1 Serial No.: A12001121 –

Switch Chart	
Description	Schematic Ref. Number
Monitor	SW301
Dolby NR ON/OFF	SW302
Dolby NR C/B-Type	SW303
Memory	SW304
Eq.	SW305
ZX	SW306
SX	SW307
EX	—
MPX	SW308
Headphone	SW309



Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.

Fig. 13.4.1 Serial No.: A12001121 —

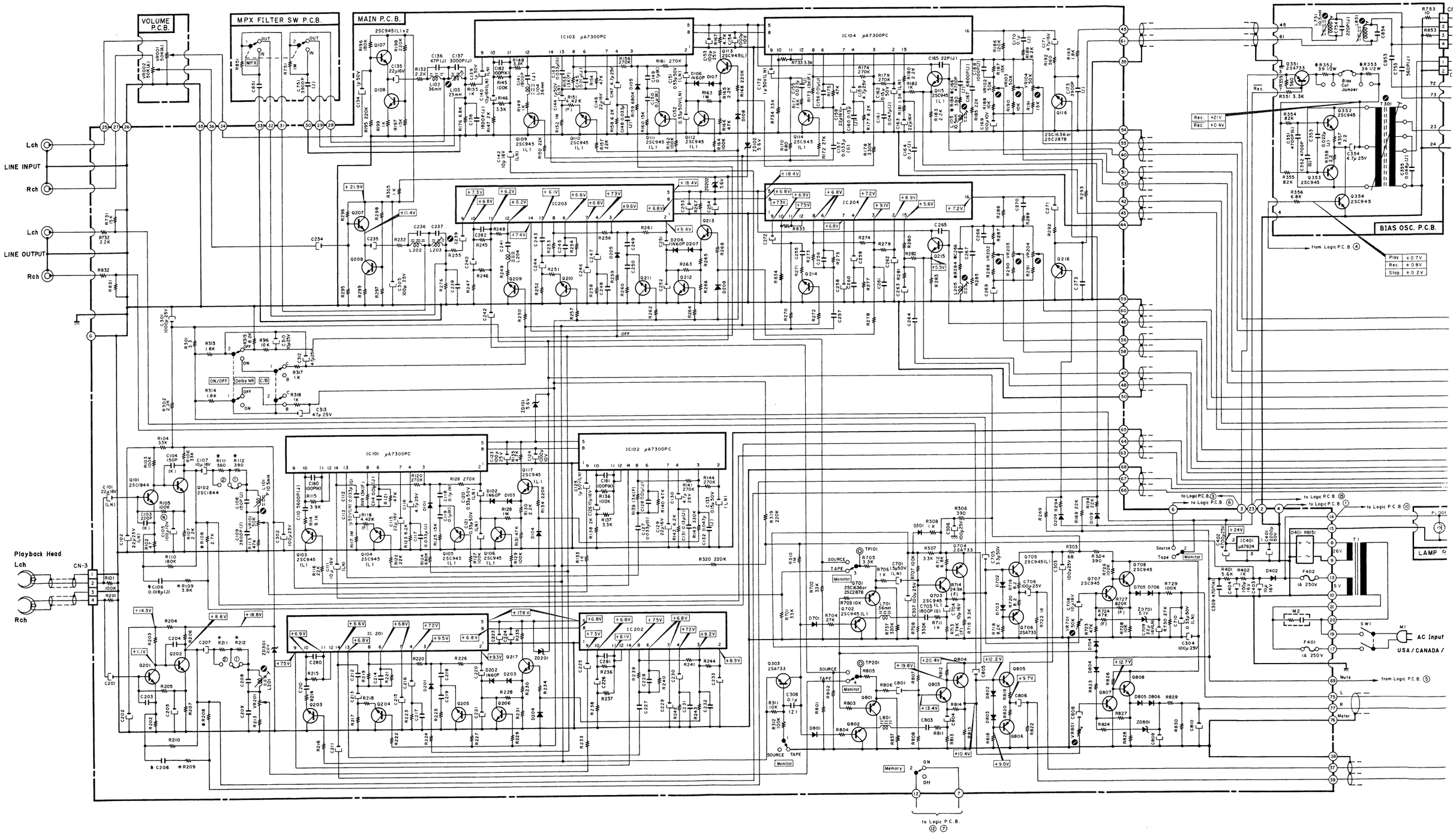


Fig. 13.4.2 Serial Nos.: A12001001 – A12001120

Switch Chart	
Description	Schematic Ref. Number
Monitor	SW301
Dolby NR ON/OFF	SW302
Dolby NR C/B-Type	SW303
Memory	SW304
Eq.	SW305
ZX	SW306
SX	SW307
EX	—
MPX	SW308
Headphone	SW309

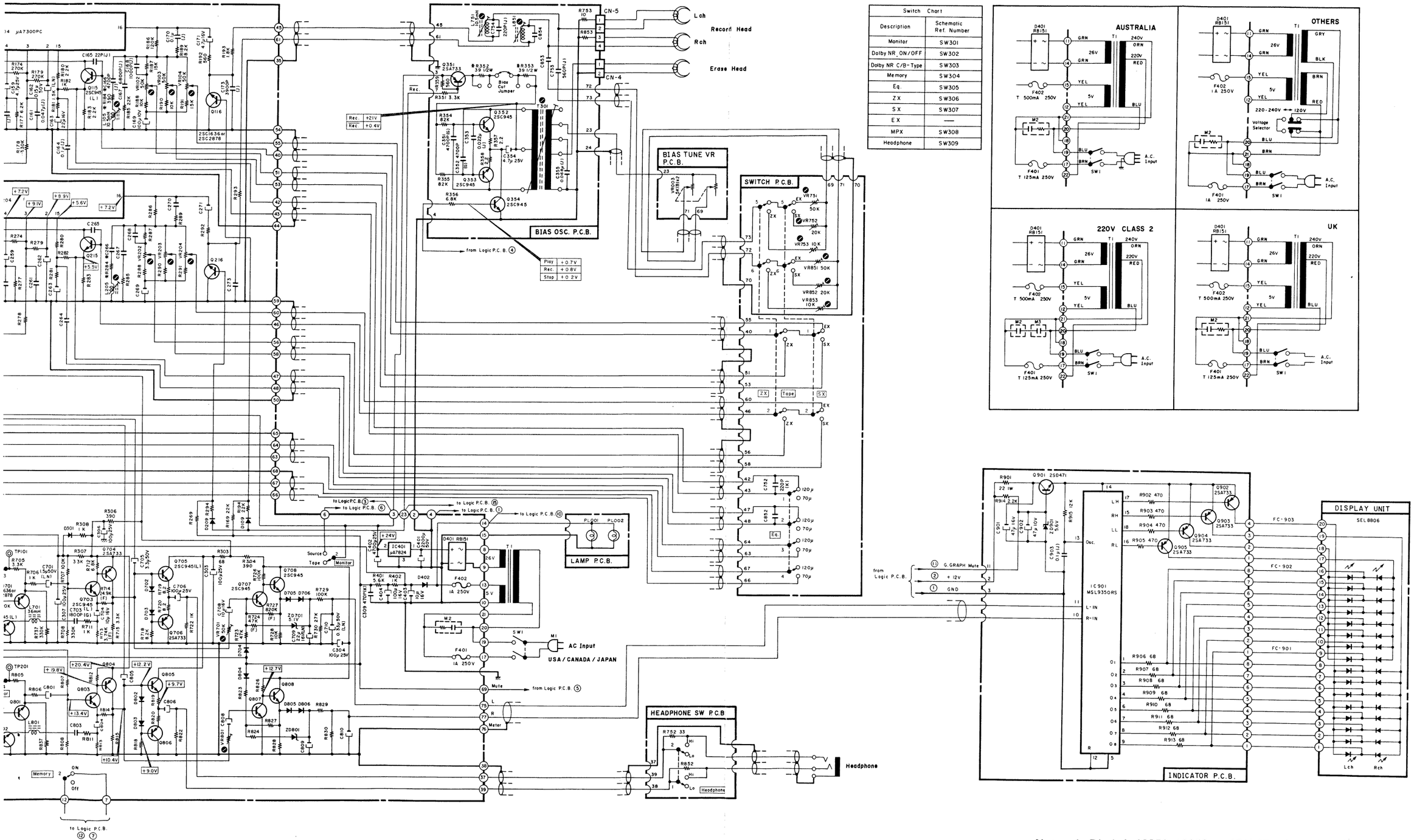


Fig. 13.4.2 Serial Nos.: A12001001 – A12001120

Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.

14. SPECIFICATIONS

Power Source	100, 120, 120/220-240, 220 or 240 V AC; 50/60 Hz (according to country of sale)
Power Consumption	30 W max.
Tape Speed	1-7/8 ips (4.8 cm/sec) ±0.5%
Wow and Flutter	Less than 0.11% WTD Peak, 0.06% WTD rms
Frequency Response	20–20,000 Hz (–20 dB Rec. Level)
Signal to Noise Ratio	**Dolby C-Type NR on** <70 μs ZX Tape> Better than 69 dB at 400 Hz, 3% THD, IHF A-wtd rms **Dolby B-Type NR on** <70 μs ZX Tape> Better than 63 dB at 400 Hz, 3% THD, IHF A-wtd rms
Total Harmonic Distortion	Less than 0.9% at 400 Hz, 0 dB (ZX Tape) Less than 1.0% at 400 Hz, 0 dB (SX, EXII tapes)
Erasure	Better than 60 dB below saturation level at 1 kHz
Separation	Better than 36 dB at 1 kHz, 0 dB
Crosstalk	Better than 60 dB at 1 kHz, 0 dB
Bias Frequency	105 kHz
Input	50 mV, 30 k ohms
Output Level	600 mV (400 Hz, 0 dB) 2.2 k ohms
Headphone	10 mW (400 Hz, 0 dB, phones level: High) 8 Ω
Dimensions	450 (W) x 135 (H) x 289 (D) m/m 17-23/32 (W) x 5-5/16 (H) x 11-3/8 (D) inches
Approximate Weight	6.4 kg, 14 lb. 2 oz

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